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CLINICAL MEDICINE

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CHARLES H. MAYO, M. D., F. A. C. S.

Clinical Medicine

A Monthly Postgraduate Course

Vol. 32, No. 10 **October, 1925**

Dr. Charles H. Mayo

CHARLES HORACE MAYO was born in Rochester, Minnesota, July 19, 1865, the son of Dr. William Worrell and Louise M. (Wright) Mayo. He attended the public schools of Rochester, and Northwestern University, receiving the degree of Doctor of Medicine, in 1888, from the Chicago Medical College, which is now the Medical Department of Northwestern University.

But Dr. Mayo's education was not all obtained in the schools. His father, who had been an earnest and enthusiastic physician since 1854, had decided that his boys were to become famous surgeons and set about giving them personal training to that end while they were still very young. During their spare hours, the boys both did errands and other work in a drug store, in order that they might become familiar with the medical end of the work to which their lives were to be devoted.

With the same ends in view, after they had received their degrees, he gave his sons the benefit of postgraduate work in the best schools, hospitals and clinics which the country then afforded.

When St. Mary's Hospital was opened, in 1889, Dr. W. W. Mayo was placed in charge, but, confident of the ability of his sons, he turned almost all of the surgical work over to them, and within a decade he relinquished his professional duties entirely.

Those early days at St. Mary's were far from easy, for the three Mayos constituted the entire staff of the hospital for four years, and for thirteen years the two brothers did all the surgery at that institution. There were no "modern conveniences" in those days and Dr. Charles made his evening rounds of the hospital with a kerosene lantern and turned out in the cold nights to answer emergency calls. It is even recorded that he assisted in digging the pit and putting in the first elevator which was installed in the hospital. He was the first citizen of Rochester to purchase an automobile.

The famous Mayo Clinic was opened in Rochester in 1889, with these brothers as its surgeons.

In 1905, Dr. Mayo was elected President of the Minnesota State Medical Association; President of the Surgical Section of the International Congress on Tuberculosis in 1908; and President of the American Medical Association in 1916.

With his brother, William, in 1915, he donated $1,500,000 to establish the Mayo Foundation, and was appointed its Professor of Surgery the same year. He is Professor of Surgery in the Medical School, University of Minnesota, and has been a regent of the American College of Surgeons since 1913.

In addition to his degree of Doctor of Medicine, the doctor is a Master of Arts, and also is entitled to write the letters, LL.D., F.A.C.S., and D.Sc. after his name and is, also, a Fellow of the Royal College of Surgeons of England and of Ireland, and a member of the Sigma Xi and the Alpha Kappa Kappa fraternities. He belongs to all the important surgical societies in this country and has been an officer of most of them.

In 1913, Dr. Mayo accepted a commission as First Lieutenant in the Medical Reserve Corps of the Army; in 1917, he was promoted to the rank of Major and in 1918 to that of Colonel. During the period of the World War, he alternated with his brother, Col. Wm. J. Mayo, as chief consultant for all the surgical services of the Army. In 1920, he was awarded the Distinguished Service Medal, by direction of the President, and in 1921 was appointed a Brigadier General in the Medical Reserve Corps of the Army.

Someone has said that almost anyone of ordinary intelligence and dexterity can learn the mechanical technic of surgery in a few years, but that only a lifetime of study and practice can bring to its fullness that marvelous faculty known as "surgical judgment". Anyone who has seen Dr. Mayo at work can not fail to recognize that, in spite of his quiet and modest demeanor, he is in the presence of one of the surgical masters of this generation.

Ability doth hit the mark where presumption overshooteth and diffidence falleth short.

You can preach a better sermon with your life than with your lips.

PNEUMONIA NOTES

We are hoping to be able to publish a special number of CLINICAL MEDICINE during the winter dealing with the important subject of pneumonia. We hope that, in this number, not only the leading articles but also the other departments may be largely devoted to this subject.

In order to further this project, we wish that every reader who has had any extensive experience in the treatment of this disease, or who has developed any practical methods for its diagnosis or treatment, or both, would sit down, *at once*, and tell us about it so that we may fill up the department of "Clinical Notes and Practical Suggestions" with these brief and practical hints from the "firing line". You like to *read* that sort of thing, doctor, so why not do a little *writing*, so that others may profit by your experience as well as you by theirs.

Tell us what drugs you use, and why; what physical methods you employ, and the results; what diet you give your patients; whether you use serum or vaccines; and *all about it*, and let us have this material *as soon as you can.*

You need not be a literary expert in order to do this. If your notes are not just what you would wish them to be, it is our business to put them in proper shape. You give us the *ideas* and we will dress them up in their party clothes.

Will you not make an effort to cooperate in making "our" journal a big success?

Impressions in medicine are very often misleading. Statistics are the natural check to impressions.—Dr. Wm. Lintz.

GETTING AWAY

By this time you have probably had your summer vacation—or you haven't.

If you didn't get away for a few weeks you have done an injustice, to yourself, your family and your patients; and the reason why you did not go was probably the fear that you would lose business—possibly lose a good family—while you were gone.

Our British brethren manage this thing better, in many ways, than we do. Over there they have an institution known as the locum tenens. Young physicians, who have not yet fully established themselves in practice, are available to take the place of any physician who wants to get away for a few days or weeks. The locum tenens lives in the doctor's house during his absence; keeps the doctor's hours in his own office; calls upon his patients; and keeps his practice together for him until his return. Everybody is satisfied.

Of course, if you go away without telling your patients about it and making arrangements for their care during your absence, they have a right to feel somewhat offended.

The June number of *Medical Economics* contains a little article on this subject. When you need a vacation, why not turn over your practice to some competent and trustworthy brother physician—and then take care of his practice while he takes a vacation? Tell your patients about it before you leave. Send them a printed card or a note giving the name, address and telephone number of the man they may

call during your absence. They will appreciate this courtesy and realize your need of a rest.

The Chicago Medical Society is rendering a fine service to its members by compiling list of physicians showing when they may be reached at their offices, residences, hospitals or clubs (with phone numbers), and the names and phone numbers of physicians who are to be called in their absence. Anyone who is interested in the details of this service can obtain them from the Secretary of the Society.

Such a plan ought to work out well in any city but would, perhaps, be impracticable for the smaller County Societies. In any case some plan can be worked out, we feel sure.

The added freedom which would accrue to individual physicians would not be the only benefit from an arrangement like those suggested. The cooperation required would engender a richer brotherly spirit among doctors; and then—your patients will never realize how good you are until they have to put up with the ministrations of someone else for a while.

The book of Nature is only readable by those whose desires turn its pages.—A. B. Jamison.

DIGITALIS

It has been said that there is probably no drug whose therapeutic use has caused so many deaths as have resulted from the ill-considered administration of digitalis. It is, however, equally or more true that, when indicated and given carefully by a physician who thoroughly understands its uses and limitations, there are few drugs which will bring such gratifying and durable results to patients who are suffering and well-nigh hopeless as this same digitalis.

Digitalis is the dried leaves of *Digitalis purpurea*, or foxglove, collected from plants of the second year's growth, and the preparations most widely used are the tincture, the infusion, the fluid extract, and various concentrations, such as digipoten and digitalone. The drug contains several alkaloids, chief among which are digitalin, digitalein, digitoxin and digitonin.

Physiological Action.—The action of digitalis is so preponderatingly upon the heart that the other minor actions may safely be disregarded. In medicinal doses, it increases the pulse-force and arterial pressure, slows the pulse, and increases the size of the pulse wave. These results are produced by direct stimulation of the muscular structure of the heart; stimulation of the vagus and the vasomotor centers; and an increase in conduction time over the bundle of His. The period of diastole (which is the only resting-time the heart ever has while a man lives) is prolonged, thereby permitting the succeeding contraction to be stronger and more vigorous. If the vagi are the trophic nerves of the heart, as some believe, there is good evidence to the effect that digitalis may improve cardiac nutrition and favor compensatory hypertrophy.

The alkaloid, digitalin, is the most powerful factor in heart stimulation, while digitonin acts as more or less of an antagonist to it. None of the alkaloids are highly satisfactory for hypodermic use, as no one of them represents the full therapeutic efficiency of the drug and they are all slowly absorbed and more or less irritating.

Therapeutic Uses.—Digitalis is a cardiac stimulant and, by slowing its beat, it rests the heart. Its chief field of usefulness is in valvular heart lesions and auricular, fibrillation, *with broken compensation.* The mere existence of a heart murmur is *never* an indication for digitalis.

It is of less value in aortic regurgitation than in other lesions, because the lengthened diastole permits more blood to fall back into the ventricle. In cases of extensive myocardial degeneration its effect will, of course, be unsatisfactory because the muscular tissue which it stimulates is largely replaced by some low-grade structure, such as fat, upon which it can have no influence.

In cases of socalled "irritable heart", with loss of muscular tone, it acts well, sometimes bringing about a permanent cure.

In the second stage of pneumonia, when the heart is laboring, digitalis is invaluable; and in congestion of the lungs, in typhoid states, it will relieve the stasis unless the fever is so high that the heart muscle is degenerated.

As a diuretic, it is chiefly useful in cases where the kidneys are congested and the circulation sluggish because of weak heart action. If the kidneys are diseased, other drugs should be used.

Poisoning.—The symptoms of digitalis poisoning are a slow, full pulse, followed by an irregular, dicrotic beat, and becoming rapid and irregular when the patient rises from the recumbent posture.

Tannic acid is the chemical antidote and aconite and atropine the physiological antag-

onists. Strict maintenance of the horizontal position must be insisted upon for several days.

Contraindications.—In marked atheroma of the blood vessels, aneurism, apoplexy and fatty degeneration of the heart, digitalis should be used with great care, if at all.

Administration.—In giving digitalis, it should always be remembered that its effect manifests itself slowly (it is 6 to 8 hours befores it reaches its maximum) and persist for a long time. In other words, its effects are cumulative.

For stimulating effects upon the heart, the best results are obtained by giving the tincture or one of the concentrations, such as digipoten, one grain of which represents 10 minims of the tincture.

If an adult patient is suffering from the effects of serious decompensation and *has had no digitalis*, it is sometimes well to give an initial dose of ½ to 1 minim of the tincture (or its equivalent) for each pound of body weight—1 to 2 drams, at once. After this no more should be given for 24 to 48 hours, after which the effect may be maintained by doses of 15 to 20 drops of the tincture (or equivalent) three times, or less, per day.

In less urgent cases (some authorities say in *all* cases) it is better to give smaller doses at more frequent intervals, until the desired effect is obtained, and then lengthen the intervals.

It should be remembered that, in cases of partial heart block or where digitalis has been previously given the massive doses first suggested may cause prompt death.

When a diuretic action is desired, the infusion is superior to the tinctures, because digitalin is but slightly soluble in water, while digitonin is freely soluble. We thus obtain the action of the digitonin with a minimum of spasm of the renal vessels. If renal stasis is due to a seriously enfeebled heart, the tincture acts better.

If, for any reason, digitalis does not produce the desired results in any case it may be well to try *strophanthus*, as this drugs acts much like digitalis (some authorities are now saying that its effect upon the heart muscle is more direct and powerful than that of digitalis), but without the element of vagus stimulation. For this reason strophanthus is sometimes a better drug than digitalis in cases of weak heart with high arterial tension, as it exerts no effect upon the blood vessels.

Too much stress can not be laid upon the importance of using a *physiologically standardized* preparation of digitalis, as the crude drug varies so greatly in strength that the physician is between the *Scylla* of doing his patient no good and the *Charybdis* of killing him.

It is easier to perceive error than to find truth, for the former lies on the surface and is easily seen, while the latter lies in the depths, where few are willing to search.—Goethe.

PROF. C. H. STRATZ

On p. 725 of this issue of CLINICAL MEDICINE, there is an abstract of an article which appeared in one of the German gynecological periodicals, having been contributed by the late Prof. Stratz, one of the best known German gynecologists.

Stratz was born in Odessa, in 1858, and acquired his medical education in Germany.

In 1887 he went to Netherlandish-India, as sanitary officer, and after his return, in 1896, located in den Haag, where he specialized in gynecology for the rest of his life.

During the war, he served with the German army on the Eastern front, in the Balkans, and finally in France. The social disturbances deprived him of his entire fortune, and the last years of his life were made difficult through actual poverty.

Stratz was an experienced gynecologist and a scientist of note. He contributed widely to gynecological literature and his death is felt deeply by his colleagues.

We are glad to express our appreciation of his contributions to gynecology, in keeping with the promise made to Prof. Stratz' widow, who is anxious to perpetuate his name.

Justice is itself the great standing policy of civil society; and any departure from it, under any circumstance, lies under the suspicion of being no policy at all.—Burke.

OLD AGE

When is a man old?

Elbert Hubbard, "The Sage of East Aurora," once remarked, "The good die young—no matter how long they live."

Upon mature consideration we feel that the word, "good", in this aphorism, might be replaced by "active", "progressive", "enthusiastic", or any other word which would indicate that a man is keeping up a vital interest in life, changing as times change and *growing* all the while.

When should a physician—or any other man—retire?

As soon as he loses interest in and enthusiasm for his work or feels that he knows all there is to know about it.

We all know that the number of years a man has lived is no adequate index of his age. There are some who are antedeluvian mummies at thirty, and others who are vital factors in the life of their communities at ninety. So long as a man is doing something worth while and means something to the world he is young.

Look at the men in our own profession. Few who are eminent in any line are under fifty. A physician at sixty-five should be in the flower of his usefulness.

Dr. Abraham Jacobi carried on an active practice at the age of 84. Sir Clifford Allbutt, who died recently, in England, at the age of 89, was still keenly interested in all that was going on and finished the writing of a text book shortly before his death. Dr. S. Wier Mitchell, who was one of our most noted neuro-psychiatrists became famous as a novelist after he was 80 years old.

No, it isn't years that age us; it is the way we meet life—our attitude of mind.

If you have lost interest in medical society meetings; if you "can not find time" to read one or two medical journals (at least); if the last book in your library is ten years old, or the later ones haven't been *studied;* if, "what you learned in medical college is good enough for you"; if "all these new-fangled notions are damned foolishness", you are growing old, as a doctor.

What if the new-fangled notions are sometimes (or even, often) wrong? Get enthusiastic about them, anyway, or, at least, know enough about them to curse them with intelligence as well as fluency.

What if the medical journals, and even text books do contain a lot of "bunk"? You will never be able to know just how worthless they are until you read them carefully; and if you do that you cannot fail to become enkindled with enthusiasm at the idea of the tremendous advances that are being made along all scientific lines. There may be a good deal of chaff, but the farmer has to *thresh* his wheat, and the results are worth the effort.

Do you find it a bore to take your wife to a dance or your children to a movie or to take the whole family out into the woods for a picnic? Are you disturbed and peevish when dinner is not ready on the minute or the children make healthy, cheerful noises about the house? If so, you are growing old as a *human being.*

Robert Louis, "The Beloved", wrote, years ago,

"The world is so full of a number of things,
"That I think we should all be as happy as kings".

That's the secret! You do not have to travel a long distance to the land of "heart's desire." Look about you. The *whole world* is full of interesting, exciting, delightful, lovable things. Sieze them!

If you find, on mature deliberation—be perfectly frank with yourself—that you are slipping into senescence (no matter what your years may be), the remedy is *more life.* More interest in the people about you and in your work; more knowledge of the progress which is being made in all lines, all over the world; more sympathy and understanding.

Don't let life bury you until you are dead. Keep *living* and learning and loving and you will stay young.

Come, let us live with our children.—Froebel.

WHAT ARE YOU DOING WITH THE NEW THINGS?

We have been publishing articles and abstracts every month dealing with new drugs; new physiotherapy and other apparatus and methods; new ideas of all sorts in medicine and surgery. What are *you* doing with these new remedies and new ideas?

Medical science is progressing so fast these days that a man must keep his eyes and ears and, especially, his mind wide open all the time in order to keep up with it.

In order to assist in this laudable enterprise of *keeping up,* we hope (in addition to what we are trying to do every month) to make our issue for next January a special "Progress Number". Men who stand high in various fields will contribute articles on the recent progress in their various specialties; but we want this number to show, also, the progress being made by practitioners all over the country.

If you have been making use of the new drugs and new ideas we have been calling to your attention, write and tell us what success you have had with them. You may feel that one man's experience does not amount to much, but if we can record the experience of a few dozen men it will amount to a lot.

What we said about the writing of the letters or articles under the head of "Pneumonia Notes" goes for this stuff, too. Send in your material so as to reach us not later than November 15th and see what a corking number we will give you.

In all the world, there is no more heartbreaking tragedy than the misfit—the man in an occupation for which he is not suited.—Frank H. Gamel.

CANCER

The problem of cancer has been with us for an immense period of time, but could not be recognized as a problem until the science of bacteriology had been developed and the study of communicable diseases had proceeded to a considerable extent. It has not been recognized as an *acute* problem until within comparatively recent times, when the steady increase in the mortality rate for malignancy has forced the subject upon the attention of investigators all over the world.

An immense amount of study has been devoted to the cancer question by scientists in all civilized countries, and innumerable *guesses*, more or less well-substantiated, have been made as to its etiology. These guesses have, mostly, fallen into two general classes: (1) that it is a germ disease, more or less like measles or small pox, and (2) that it is due entirely to some vitiation or perversion of the chemistry of the body cells. One writer has made out a plausible case for its being caused by the increasing consumption of "denatured" foods, such as white flour, white sugar, etc.

It now appears as though an adequate foundation had been laid for the scientific investigation of this dread malady through the experimental researches of Dr. W. E. Gye, of Edinburgh, backed up by the ultramicroscopic studies of J. E. Barnard, F.R.D. Dr. Gye has demonstrated that there are *two* factors required for the production of cancer: a filtrable virus, which is not specific for various types of malignancy nor for various animal species—an extrinsic factor, which can be cultivated; and a "specific factor", probably of a chemical nature, which is specific for animal species and for type of growth, and which appears to develop within the cells of the host, thus enabling the virus to attack the cells. Unless both of these factors are present, no cancer results.

Barnard, by his researches with the photographic ultramicroscope, has been able to demonstrate organized bodies in filtered viruses, and these bodies have been cultivated much as bacteria are cultivated.

The reports of Gye and Barnard appeared in the *Lancet*, of London, for July 18, 1925, and in the same number was an extended editorial which so adequately summarized these reports and their importance that we are reproducing the most important parts of it on page 711 of this issue.

WHAT becomes of me personally is of no great importance. I am only a temporary phenomenon. The problem is not how I can save myself. The great problem of humanity is how to save humanity. That calls for a remedy in society itself. ¶ *If we want to live clean lives we must have clean dwelling places; if we want clean souls we must aid to make society clean. If we give a woman such wages that she cannot live, then we thrust on her the necessity of getting the means of life some other way. It was not the salvation of the individual but the salvation of society that concerned Jesus.—Rev. A. S. Crapsey.*

Leading Articles

The Tuberculous Intoxications*

By JOSEPH HOLLOS, M.D., Youngstown, Ohio
Pathologist of St. Elizabeth's Hospital

IT is generally known, today, that the majority of mankind undergoes tuberculous infection and more than half of the children up to the age of 12 have been infected with the tubercle bacillus. Only a small percentage of those who have been infected will become manifestly tuberculous; the larger percentage becomes healed, or their diseases will stay in a *latent stage*, eventually accompanied by occasional recidives; or the disease manifests itself in its varied *larvient* forms. The form of appearance of the disease, its course and prognosis depend upon a number of factors, the most important of which are:—

1.—The magnitude and virulence of infection.

2.—Repeated infections.

3.—Hereditary and acquired immunity.

4.—The reaction of the organism toward the toxins of tuberculosis.

This paper will deal with the last mentioned problem and with the summing of the results of my clinical investigations in this direction during the last 18 years.**

The Tuberculous Process

Tuberculosis begins with the development of the primary focus localized mostly in the peribronchial lymph-nodes. The fewer and the less virulent the tubercle bacilli the slower the process of tubercularization. The toxins, becoming absorbed from the foci, develop the defense of the organism by the production of immune-bodies, as a result of which the cells of the granulation tissue destroy the bacilli or stop the progress of the process by encapsulating them with a fibrous wall.

As a finding of secondary importance we see the cicatrized primary foci which were not given due clinical interest so far, although their role is of extraordinary importance. These are the basis of the later immunity against tuberculosis.

The spontaneous infection of children acts practically as a vaccination, not causing an absolute but a relative or *partial immunity*. This circumstance demonstrates another importance of primary foci: the appearance of a *lytic immunity* causes hypersensitiveness of the organism which, in its turn, is the source of intoxication symptoms.

The other form of partial immunity, the *antitoxic immunity*, appears following tuberculin injections or may be found in persons with severe tuberculosis. In both cases large doses of tuberculin can be injected without injury to the organism or provocation of any particular reactions. The lytic immunity, on the contrary, is always accompanied by hypersensitiveness, and although assuring a stronger protection against renewed infection, by provoking continual intoxications, it causes fevers and other pathological symptoms. As a consequence of this hypersensibility the most varied functional disorders and subjective symptoms will develop which may torment the patient for years and even decades without his ever having any manifest sign of tuberculosis.

Symptoms of Tuberculous Intoxication

The patient, in proportion to his hypersensibility, begins to react to the toxins of his own tubercle bacilli or to repeated slight infections. His temperature becomes varying; will very easily rise above or fall below normal or remains, often for months or even years, one or two degrees F. above normal. In other cases its type is changed at times only, although it hardly oversteps the normal limits. The function of the vasomotor nervous system may fluctuate similarly: the patient blushes or becomes pale very easily; the extremeties are frequently cyanotic and cold; he feels hot at times or has chills at other times. The secretion of perspiration increases; often

*Read before the Staff Medical Meeting of St. Elizabeth's Hospital in Youngstown, Ohio.

**For further details note:
J. Hollos: *Les intoxications tuberculeuses.* Paris: Masson, 1910. (Awarded the Audiffred prize by the Académie de Médicine in Paris.)
Symptomatologie und Therapie der latenten und larvirten Tuberculose. Wiesbaden: Bergman, 1911.
Die Tuberculose Immunität. Virchow's Archiv, 1913.
Erkennung der Tuberculose und ihre Heilung durch C. Spengler's Immunblut. Leipzig, Hellas Verlag, 1922.

the slightest exertion, like walking, is accompanied by more or less sweating. Nervous symptoms manifesting in the most various disturbances appear, as dizziness; extreme fatigue, mostly in the morning; the patients are ill-humored, excitable and sleepless. At other times sleepiness troubles the patient continually—he is always sleepy, no matter how much he has slept; the sleep is often disturbed by nervous excited dreams. Functional disorders of the various organs will develop. Especially frequent are the disturbances of the heart, as palpitation, fast and sometimes arhythmic pulse or a fall or rise of blood pressure.

A frequent symptom is occasional shortness of breath, often increasing so as to incapacitate the patient. Among the many disturbances of the gastrointestinal tract, the loss of appetite should be mentioned first, which may alternate with a nervous hunger; nausea; diarrhea, more frequently temporary; or constant constipation. Various pains may afflict the patient. Particularly frequent are the different types of headaches; pains in the joints, muscles and nerves; gastralgia, appearing before or after meals; pains localized in the kidney region or gall bladder; appendical pains; etc. Menstrual disorders: irregular, little or much, and continued hemorrhages, sometimes complicated by dysmenorrhea and other disorders. Different disturbances may appear pertaining to general development, puberty or metabolism; also chronic skin lesions like psoriasis, eczema, etc.

These symptoms are partly results of disturbances in the individual organs and are partly caused, indirectly, through injuries affecting the *endocrine glands*, irritation and, eventually, decreased function of which secondarily influence metabolism, the growth of the organism and the function of organs. For instance, irritation of the ovaries causes precocious puberty and profuse menstrual bleedings; a decreased function of the same organs causes late and defective puberty and amenorrhea. Irritation of the thyroid will cause loss of weight and symptoms of toxic goiter; decreased function, a gain in weight, headaches, and other nervous or metabolic disturbances. The symptoms may be transient or constant.

The continuous influence of intoxications, according to the individual reaction of the different organs to the toxins, produces chronic inflammation in these organs, the nature of which was explained by Poncet and Leriche who described the anatomical substratum of the tuberculous intoxications.*

One symptom or another, or symptom complexes, appear in the patient; and the more his immunity and, accordingly, hypersensitivity increases, the more the intoxication symptoms will develop and will become chronic. The tuberculous process itself progresses very slowly or does not progress at all, in the meantime, due to the existing immunity, and, in many cases, is therefore not demonstrable by the usual clinical examinations. Because of similarity of symptoms the sickness of such individuals is not diagnosed as tuberculosis but as anemia, neurasthenia, hysteria, neurosis, rheumatism, etc.

Hereditary Immunity

Among tuberculous families, especially when the disease has appeared in several generations, many of this type can be found. Hereditary immunity plays a large rôle in decreasing the intensity of tuberculosis, afflicting generation after generation. One of the parents might suffer from chronic phthisis; one or two of the children might, also, have manifest tuberculosis, the majority being neurasthenic and anemic; whereas the grandchildren would show only the most various forms of the already attenuated tuberculosis—as thyrosis in one case, rheumatism in another, some disturbance of the development or metabolism, or some other group of symptoms of this varied clinical picture—whether we call it tuberculous intoxication (after my nomenclature) or inflammatory tuberculosis, after Poncet and Leriche.

Patients with such an intoxication, hypersensibility or lytical immunity (all these expressions have identical meaning) will have, naturally, entirely different reactions to renewed infections from that shown by tuberculous patients without such immunity or by healthy individuals. The added endotoxin will increase the existing symptoms, most often shown by fever or, also, by slow marasmus.

On final analysis most of these various symptoms and symptom complexes can be reduced to the disturbances of two systems: the endocrine and the sympathetic nervous system which, closely combined in their mutual relations, bring forth various and often contrary symptoms. One or two of these symptoms are present at times or only

*Ant. Poncet et R. Leriche: *La tuberculose inflammatoire.* Paris—Doins, 1912.

one is the dominating symptom,—for example headache persisting for years, or dysmenorrhea, or sleeplessness—for which the patient consults the doctor; but a number of minor symptoms may be discovered by proper inquiries. Again, many of these symptoms may disturb the patient, who consults one physician after the other with his complaints, rarely or never getting any relief from the customary iron, arsenic, phosphorous, bromides or other medication, hydrotherapic or dietary measures.

Proof of Tuberculosis

That tuberculosis causes and sustains these symptoms we can prove by the following:

1.—The demonstration of tuberculosis by physical examinations or by specific diagnostic procedure.

2.—All these symptoms can be cured, temporarily or entirely, by a well applied specific therapy (tuberculins or Spengler's immunblood), which, as specific antigens or immune-bodies, can act on tuberculosis only. Symptoms persisting for years and defying every treatment can occasionally be cured by one or a few immunblood injections, through the neutralization of the toxin.

3.—All the symptoms mentioned can be provoked or increased, during the course of specific treatment, by the non-corresponding tuberculin injections of the dualistic tuberculin treatment, or by the larger doses causing a stronger lysis upon the application of immunblood. If, in such a case, the corresponding tuberculin (heterotoxin) be injected or if we return to the smallest doses with the immunblood treatment we may be able to stop, with a single injection, all the toxic symptoms provoked. Such cases have the value of an exact experiment. Within the last 18 years I have had the opportunity of drawing the above conclusions from my specific treatment and exact observation of about 15,000 patients.

4.—The postmortem proofs are also of great importance, but this material will accumulate slowly because we can judge only of the specifically treated cases. I have had the opportunity of dissecting only two such cases, both of which died from intercurrent diseases; and both have verified my conclusions.

Immunblood

The immunblood which I have mentioned is based on the discovery, by Carl Spengler, of Switzerland,* that the immune-bodies of tuberculosis are accumulated in the red blood cells and only a small part of them reaches the serum. Spengler prepared the immunblood (in German it is also called, *Immunkörper or "IK"*), in the following way: He injects into rabbits, intramuscularly, a symbiotical (human and bovine), tubercle bacillus culture of the greatest virulence until the animals are immune. After a certain time he bleeds the animals and dissolves the washed red blood cells. This forms the original immunblood which is used, greatly diluted.

The injection of large doses of the original immunblood has little or no effect upon healthy individuals or patients with serious tuberculosis; on the contrary, patients with lytical immunity react to one 1000 millionth dilution, often with high fever, universal and focal symptoms. The lytical effect appears after 4 to 5, or even 7 to 8 days, lasting from a few hours, to several days. The treatment can be given in slightly increasing doses subcutaneously or by rubbing some of the dilution into the skin every day. This rubbing can be applied between the single injections.

The beginning dose for injection is the No. IX or X dilution; for rubbing, the No. VI, VII or VIII dilution. The No. I dilution will be made from the original immunblood, (with 0.5 percent carbolwater) the II from the I, the III from the II and so on:

Thus the No. I dilution=1:10
II dilution=1:100
III dilution=1:1000 and so on,
the X dilution=1:10,000,000

The immunblood is to be had in Davos (Switzerland) from Pharmacist Lang.

Importance of Recognition

The recognition of symptoms of intoxication has an importance not only from the point of view of early diagnosis, but it is also the most important basis of prognosis. It follows from what has been said that the intoxication symptoms truly form the reaction of the organism against the poisoning. The more pronounced these symptoms are the less developed the manifest signs of tuberculosis, because of the immunity present. Therefore, the more the intoxication symptoms prevail and the more they precede or accompany the manifestation of tuberculosis, the more we can rely upon its benignity and healing. And vice versa; the phthisis appearing without intoxication symptoms is, in the majority

*Deutsche Med. Wchnschr., 1908, No. 38.

of cases, malignant, with an unfavorable prognosis.

It is very important, however, to recognize the various symptoms. For instance, fever may be the sign, as well of reaction of the organism and so of favorable prognosis, as of progress of the disease and secondary (septic) infection. In the former case, if the patient perceives a rise of temperature of a few tenths of a degree, he is considered sick because of a whole series of accompanying symptoms, as faintness, headache, muscle-aches, vasomotor disturbances, etc.; whereas, in case of unfavorable prognosis, where the reaction of the organism is absent, it often occurs that the patient does not even feel feverish and he can still work well, often with high temperature.

A fast pulse may be the origin of reaction, as well as a sign of progress—i.e. an unfavorable prognosis. In the former case it is always connected with feeling of palpitation and other disagreeable subjective sensations; but in the latter case the patients do not complain about palpitation even with a pulse of 140-160.

Loss of Immunity

It is possible that the partial immunity, present in the beginning, decreases and finally disappears. The illness begins with the symptoms of intoxication and the tuberculous process itself is hardly perceptible in this state. Through some cause, as pregnancy or some infection (influenza, measles, whooping-cough, typhoid), or through bad sanitary or social circumstances, or chronic alcoholism or (which occurs very often), through repeated tuberculous infections, the immunity and also the hypersensitiveness will disappear. The intoxication symptoms having disappeared, there follow the manifest symptoms of phthisis: fever, cough, spitting of blood, bacilli, crapitant rales and so on. In such cases the lost immunity may yet be evoked by sanitary, climatic or specific treatment and so make the process inactive.

Prognosis

In what respect the presence of intoxication symptoms can serve as measure of prognosis I have related in a previous article,* tabulating the number of cases with menstrual disturbances. Out of 712 cases examined, 213 (30 percent) cases were regular and painless. It is striking how many of these had the most unfavorable prognosis, several of them dying in a few years. Therefore I grouped the cases of bad prognosis separately. Out of 712 cases the prognosis in 119 was unfavorable. Out of these 119 cases 75 women (63 percent), had regular and painless menstruation. On the other hand, out of 593 favorable cases, only 138 (23 percent) of women had regular and painless menstruation.

To illustrate the above I will give the history of the following two cases:

Case of favorable prognosis

G. Z., Female, 21 years old.

Patient coughed for 3 months; she had constipation for one year and perspiration in the night for one month. The appetite was changeable. From time to time she suffered with headache, vertigo and nausea. There was violent pain at menstruation during 3 to 4 days, with abundant bleeding. Both parents were chronic tuberculous cases; one sister died of "consumption."

The patient was moderately developed and nourished. There were some rough, protracted expiratory sounds in the left apex.

I recommended a specific treatment but she went to the seashore instead. The troubles disappeared there and she felt well for a year. After this time all symptoms returned—they even increased—especially nausea and vomiting. I saw the patient two years after the first examination. At this time she had also developed nervousness, palpitation, entire loss of appetite and torturing constipation. She coughed and because of this her sleep was disturbed. The patient had decreased in weight, was extraordinarily pale, and permanently subfebrile. The tuberculosis showed some progress in the left apex.

I made, however, an entirely favorable prognosis, considering the definite symptoms of intoxication which had existed for a long time, with relatively slight local alteration. I planned a definite cure by specific treatment. The patient had, however, an antipathy against injections, so I began the treatment with inunctions of immunblood, performed every day by the patient herself. After 5 weeks the condition improved so far that the patient desired the injections. In this 5 weeks she increased in weight 5 pounds; the cough disappeared almost entirely; stool became normal; and all other symptoms of intoxication were decreased. Injections were given for 3 months. The temperature became normal; the weight increased 23 pounds; and even long walking did not tire her. The dysmenorrhea also disappeared.

As a precautionary measure I repeated the treatment after some months. I have had the opportunity of observing her during 7 years. She was always well and in blooming condition.

Case of unfavorable prognosis

G. L., Male, 27 years old.

Patient coughed for 2 months; he was subfrebrile for 3 weeks, during this time

*Tuberculosis and Menstruation. *British Medic. Journal*, 1913.
Die tuberculöse Etiologie der menstruations Störungen. *Deutsche Medic. Wochenschrift*, 1912.

he had some bloody discharge twice. Patient felt well and had no intoxication symptoms at all, save that, for a couple of weeks, he had night sweats, but this disappeared. He did not feel tired. Although he had a good appetite he had lost 25 pounds in the last 3 months.

His father suffered from chronic alcoholism, also patient drank wine freely. There was no tuberculosis in the family.

The patient was tall, moderately developed, thin, pale. In both apices shortened percussion sound and sharp breathing were noticeable. Temperature reached 99.5° F. every day. Weight 133 pounds. Pulse 120. Although this case was in an incipient stage I made a most unfavorable prognosis from the above facts and only upon the insistance of his relatives I began the immunblood treatment. In spite of this and that the patient remained in bed; he lost in weight one pound in one month. Then he went to one of the best climatic sanatoriums (San Remo, Italy) from which he returned with further loss of weight and with incipient tuberculosis of the larynx. In spite of repeated climatic and sanatorial treatment he died 1½ years after my first examination.

Summary

There are many clinical symptoms which should arouse a suspicion of tuberculosis even before the clinical or other signs would show the presence of this disease.

The unification of many heterogenous symptoms on an etiological basis is possible by the aid of specific treatment; partly through artificial recovery of symptoms by toxic effect; partly through stopping of the existing symptoms.

These symptoms will be mistaken for anemia, neurasthenia, hysteria, neurosis, rheumatism, thyrosis, etc., and they may mostly be traced to endocrine and sympathetic disturbances.

The reaction of the organism is mostly missing in the consumptive cases, especially in the acuter forms, therefore they rarely or never show symptoms of intoxication.

These symptoms have an universal importance, not only from the point of view of the earliest diagnosis and prognosis, but they also form the basis for a direct, individualised, specific therapy.

The Mayo Clinic

By GEORGE B. LAKE, M.D., Chicago, Illinois

THERE are many physicians whose names are well known, who owe their prominence, to a greater or lesser degree, to the prestige and opportunities offered by some city; but, there is probably only one city in the United States that owes its prestige and prominence to a physician (or, rather, two physicians) and that city is Rochester, Minnesota.

The history of the development of the Mayo Clinic, from small beginnings, in 1889, to the point where, today, Rochester is better known to foreign physicians than is Pittsburgh, St. Louis, Cincinnati or a score of our other great cities, is of the utmost interest and may possibly be dealt with in a later article; but, the purpose, at this time, is to give an idea of how patients are cared for in this institution where, last year, more than 60,000 people were given attention.

Rochester

Rochester is a town of approximately 15,000 people, situated about 400 miles northwest of Chicago and about 100 miles southeast of Minneapolis, on the Chicago and Northwestern and Chicago Great Western railways. Aside from the Clinic, it is a rather ordinary, mid-western community, with nothing to distinguish it from scores and hundreds of other towns in the Mississippi Valley. Due to the presence of the Clinic, it has a large number of fine hotels, some of which would grace a city ten times its size, and a group of hospitals which can scarcely be duplicated in most of our cities having a population of half a million.

Sources of Patients

Most of the patients at the Mayo Clinic come from the middle-western states. Many of them are referred by their home physicians, and some go on the recommendation of friends who have been there. Eighty percent of them come from towns of 4,000 inhabitants or less. A large majority are ambulant cases. Twenty-five percent of the patients are charity cases; thirty percent about pay the expense of handling their case; and the remaining 45 percent pay the expenses of the institution.

If the Clinic operated uniformly every day in the year, the average daily number of new cases would be about 165. As a matter of fact, the work fluctuates with the seasons, being higher in the summer, when

Exterior of the Mayo Clinic Building*

400 new patients are frequently seen in one day.

The Staff

The medical staff of the Clinic consists of 115 physicians, permanently employed, and 175 to 185 fellows. These latter are chosen from among graduates of "Class A" medical schools, who have subsequently served a year's interneship and have obtained a license to practice medicine in Minnesota. They serve for three years, and some of them are given a position on the permanent staff at the end of that period, or even, occasionally, after one year of service, if they manifest a special aptitude for any particular class of work. All physicians are on a salary basis, including the Mayos themselves. All profits, over and above all expenses of the Clinic, go to the Mayo Foundation, which is connected with the educational activities of the University of Minnesota, and not to any individual.

There are 25 nurses connected with the Clinic proper, though, of course, the various hospitals employ the services of many more.

In addition to the professional staff, the Clinic employs from 600 to 700 other people as clerks, orderlies, caretakers, etc.

The physicians connected with the institution have other duties besides the regular work at Rochester. Practically every one of them is sent, every year, to some institution for from 2 to 6 weeks of study along some particular line, and they are frequently assigned to read papers before medical societies all over the country. On these trips, all their expenses are paid.

Reception of Patients

The usual procedure, when a patient arrives in Rochester, is for him to find a place to live at one of the hotels. He then reports at the Clinic, registers and is given an appointment. The registering and assignment of preliminary appointments is in charge of women who have been doing this work for years and have become very keen and clever at it.

If the patient is a litter case, he is usually taken to the Colonial Hospital, where he is seen by the proper authorities as promptly as possible.

If the patient comes with a letter from his physician, or if the physician or the patient has written ahead, such letters are considered in making the assignments and are very welcome, as they frequently give great assistance in shortening the patient's stay. If the patient says he wants to see some one particular doctor, he sees him.

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ST. MARY'S HOSPITAL, ROCHESTER, MINN.

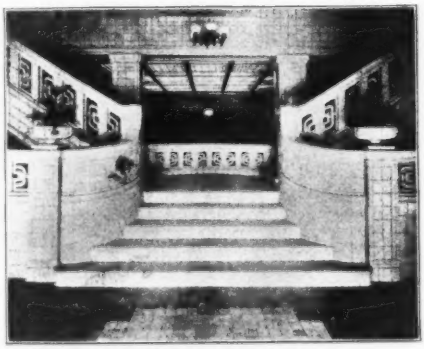
If there is no correspondence and no special preference expressed, the original assignment is made in accordance with a brief statement by the patient of what he believes to be the trouble.

In order to carry a patient through, we will assume that he stated that there is something wrong with his heart, and that he wants to see Dr. Gaarde. An appointment is made with Dr. Gaarde for the next morning at 9 o'clock.

When he reports at the office for his appointment, the doctor has his name and various other data. He is pleasantly greeted and the doctor talks over his case for a few minutes, making notes of any salient points for further investigation. He then explains to the patient that an extensive examination will be made, each part by an expert in some particular line, and that he will see him again in a day or two. Whereupon the patient is introduced to one of Dr. Gaarde's assistants who gives him a thorough, general physical examination, noting such laboratory or special examinations as appear to be necessary.

Laboratory Work and Consultations

The patient then goes to one of the assignment desks, as designated by the examining physician, and is given his laboratory cards, accompanied by explicit,



Stairway on first floor separating foyer and waiting-room

printed and written directions as to the collection of specimens or the preparation of himself for the examinations; where he can obtain the necessary containers or medicines; and when and where to report.

We will assume that he is to have a uranalysis, complete blood-count, Wassermann test, examination of his teeth, an electrocardiogram and an x-ray of his chest.

He starts in with these examinations the next morning, having received instructions where to procure a urine container, how to collect the specimen and where and when to leave it, printed on a card, on the reverse side of which the patient enters his name and assignment number, the name of the doctor who first saw him and the date. This card is tied to the bottle.

He has also received a card instructing him to take no alcohol for 24 hours before going for the "special blood examination"

Assembly Room

(the term, Wassermann test, is not used on the blanks which the patient sees); and to thoroughly scrub both forearms and the calf of the left leg, with a stiff brush, using soap and water, the morning before he reports for electrocardiography. The dates and places for these examinations are specifically stated on the cards or envelopes given to the patients.

In connection with reference to the dental service, the referring physician must state why the case is sent; as because of disease the kidneys, gall-bladder, eye, etc., or anemia, arthritis or other symptom or simply because the patient requests it. On the back of this card, the dentist notes the teeth that are *probably* responsible for the trouble, and also those which should be removed if every possible focus of infection is to be eliminated. At this time, he *does no work.*

The card goes back to the referring physician, who considers it in connection with the history and other reports, and decides and recommends just what dental work is to be done.

The x-ray department has the most modern equipment, and separate cards are used for chest, bone, stomach and colon work. In taking chest pictures, stereoscopic films are usually made.

This will give some idea of the thoroughness with which examinations are carried out and reported.

Possibly the various tests ordered are completed during the day but those outlined would probably require 2 days. The reports are assembled the morning after completion and turned over to the doctor who gave him his preliminary examination, so that, when he reports, the data are all at hand when he is seen for the second time.

If the information seems to be complete enough to warrant a diagnosis, the assistant takes the patient to Dr. Gaarde, with the completed history, and here it is all carefully checked by a second examination and a conclusion arrived at as to the treatment to be pursued or, if necessary, further examinations and consultations are ordered and the patient seen again when these are completed. No decision is reached until all evidence which might possibly be of value is at hand, including consultations with the chiefs of other services, the results of which are recorded on his history sheet.

Examining-room unit

If, in the course of the examination, it develops that the patient's "heart trouble" is due to exophthalmic goiter, he is turned over to the chief of the goiter service, who has basal metabolism tests and other necessary examinations made and is, thereafter, in charge of the case. If any other specific condition, such, for instance, as syphilis, is found to be the basis of the diseased condition, the patient is referred to the appropriate service. In this way there is no possibility that the patient's own diagnosis of his case would result in any mistake in handling it.

Having arrived at a diagnosis, the physician who first saw him, or the chief of the service to which he has been transferred, outlines the treatment. If surgical intervention or hospitalization are considered necessary, these matters are all arranged and the patient is told exactly where to go and when. In any case, the original consultant keeps in touch with him and makes him feel that someone is looking after him.

The Hospitals

The Mayo Clinic has no hospitals, though the faculty is consulted in outlining the policies of all of them. When a patient is to be hospitalized, the hospital is chosen in accordance with the class of work to be done and the man who is to do it. General surgery is done at St. Mary's; eye, ear, nose and throat work at the Worrell; goiter and heart cases go to the Kahler, etc. The average period of hospitalization is 8.8 days. The hospital fees are entirely separate from those charged by the clinic and are due and payable to the hospital where treatment is given. They average about $60.00.

St. Mary's Hospital, which was opened and received its first patient on September 30, 1889, is now the largest and most important of all the Rochester hospitals, and in it the Mayo brothers have done almost all of the surgery which has made it and them world-famous. Neither of them ever takes up a knife in any other hospital except in very rare cases of unusual and pressing emergency.

The Staff of this hospital originally consisted of Dr. William W. Mayo ("the old doctor") and his two sons, William J. and Charles H., with six Sisters of Saint Francis, who constituted the administrative and nursing staff. The first quarter-year they treated 62 patients, and the first full year (1890) 301 patients.

From that time, the growth has been steady and rapid until, in 1921, the staff consisted of 301 physicians with a proportionate increase in the other personnel, and the hospital handled 6,435 patients (8,114 patients were handled in 1917 and 8,304 in 1919). During the first 32½ years, St. Mary's cared for 112,817 patients.

Dressing-room unit

Practical Details

The histories are written in great detail and the laboratory reports are very exhaustive. In order that points in completing the histories may not be overlooked, lists of laboratory reports ordered are attached to all histories and are carefully checked, by

Library Stack-Room

skilled clerks, to see that all are complete; and "memory joggers" are printed on the blotters which are used on all desks, such as: "It is of great importance to record on the General History Sheet the date that the history is written"; "Your cooperation is requested in checking the yellow laboratory slip at the time the Refer Cards are given to the patient", etc.

The laboratory work is done by trained and experienced technicians, working, always, under adequate professional supervision.

If the patient's family physician requests reports on the findings of the Clinic, they are always gladly sent, as there is a strong desire to cooperate in every possible way. Patients sometimes bring home false reports and attempt to stir up trouble, and in such cases the Clinic always makes every effort to protect the home doctor.

Arrangement of Fees

The physicians who treat the patients have nothing to do with determining the fees to be charged (except that they may make suggestions if they find out things which may have a bearing on the matter). All business is done at the business office, where the fees are arranged in accordance with reports of various rating agencies and discussions with the patient. The general plan is to charge a man 10 percent of his yearly income for a major operation; though a fee of more than $10,000 is rarely charged, even when the income would warrant it. The centralization of effort and expense makes it possible to charge fees as low as is consistent with good work. Rural patients think these high, but city patients consider them very moderate.

A poor man is rarely charged more than two months' income, no matter what is done or how long he is treated. Many of these patients represent a considerable financial loss to the Clinic.

If a patient is unable to settle his account in one sum, installment payments are arranged and *definite arrangements* made for regular remittances which will not unduly cramp the patient financially. The bill is definitely adjusted before these arrangements are made.

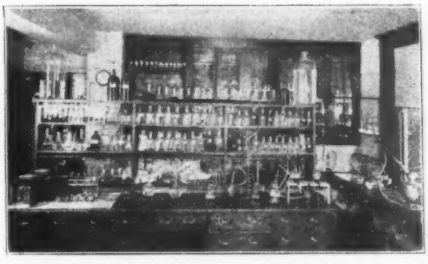
It costs the Clinic $46.85 to give a patient a complete physical examination, without any treatment, and the process requires 3 to 4 days. The fee charged for this service is usually about $46.00.

Physicians and their families are given generous concessions as to Clinic fees and hospital expenses.

Visiting Physicians

Physicians who desire to visit the clinic and take advantage of the opportunities it offers are requested to register at the main office when they arrive and to report their departure, stating what lectures, clinics and demonstrations they have attended. Cards are provided for this purpose.

A booklet is issued, containing general information and a schedule of lectures to be given and of locations where the various



One of the Chemical Laboratories

forms of clinical work are to be found. A daily clinical bulletin is issued showing just what is going on at the various hospitals and just who is operating, and where and when and upon what type of case. The arrangements for handling visitors at St. Mary's Hospital are very elaborate and are so adjusted that one may see the type of

work in which he is interested without any difficulty or confusion.

All the members of the staff seem very cordial and eager to be of assistance to those who wish to avail themselves of an opportunity to study the workings of this great medical center, and visiting physicians are invited to the weekly staff conference where extremely interesting discussions take place.

A large and well-managed library is available for the use of members of the staff and visiting physicians, and the pathological museum is exceptionally extensive and contains beautiful mountings and arrangements of material from a wide variety of conditions, so that its educational possibilities are very large.

A visit to the Mayo Clinic is a vastly inspiring and helpful experience, and every physician in the country should go there whenever an opportunity presents itself, for he will return a better and a wiser and more enthusiastic doctor, and therefore better qualified to do the work which presents itself every day and so be a joy and a help to himself and to others.

Frequent Urination

The Diagnosis and Treatment of Lesions in the Urinary Tract Producing this Symptom

By DAMON A. BROWN, M. D., Madison, Wisconsin
Section of Internal Medicine, Jackson Clinic, Madison, Wisconsin

FREQUENT urination, often attended by urgency, burning or pain, is one of the commonest complaints of patients who consult either the general practitioner or the specialist in diseases of the urinary tract. This symptom of urinary dysfunction is most sadly neglected, and an accurate diagnosis of its cause is less frequently made than that of almost any other symptom, simply because of diagnostic negligence and the almost universal practice of minimizing the importance of the complaint. The physician too often contents himself with the institution of palliative measures.

Modern Diagnosis

Modern medical science with its diagnostic accomplishments no longer tolerates mere symptomatic treatment. Due to recent acquisitions in the diagnostic armamentarium of the urologist, it is probably more possible to make definite diagnosis in the urinary tract than in any other system of the body. Knowledge of the physiology and pathology of the urinary tract has been rapidly advanced by the x-ray and the cystoscope, used in combination in making pyelograms, ureterograms and cystograms; by renal catheterization which makes possible the physical, chemical, microscopic, and cultural study of urine from each kidney; and by studies in the chemistry of the blood.

A patient who complains of disturbed urination should have the benefit of a complete clinical study, including a history of the family, previous health, marital and menstrual function, as well as an intelligent questioning about the functions of every other body system, as the nervous, cardiorespiratory and gastrointestinal systems.

Detailed data on the chief complaint are absolutely essential. This should be followed by a complete physical examination and study of the urine and blood, including a Wassermann test. The next step in the examination is an x-ray study of the kidneys, ureters and bladder, if necessary.

Etiology of Urinary Frequency

As diagnosis is largely a matter of elimination, the possible causative factors in the production of a symptom must be considered individually. The possible etiologic factors in urinary frequency may be enumerated as follows:

1.—Extrinsic disorders of the urinary tract.

(a) Malposition of the uterus producing pressure on the bladder and resulting in limited capacity, or passive congestion of the bladder wall, with consequent irritability.

(b) Infection and inflammation in the female genital tract with reflex bladder irritability or extension of infection to the bladder wall or urethra. This is especially notable in endocervicitis.

(c) Hemorrhoids, inflammation or new growths in the rectum with resultant reflex, spastic and irritable bladder.

(d) Enlarged prostate, or infection of the prostate or vesicles by staphylococci, colon bacilli, gonococci, or tubercle bacilli.

2.—Intrinsic disorders of the urinary tract.

(a) Urethral caruncle.

(b) Infection and inflammation of the bladder or urethra, or both.

(c) Vesical, ureteral, or renal calculus.

(d) Congenital abnormalities.

A Study of the Intrinsic Factors

Urethral caruncle. The urethra should always be examined for caruncle, as it is a rather common cause of urinary disturbance and is often overlooked.

Infection and inflammation of the bladder or urethra. The common invading organisms in infections of the lower urinary tract are the gonococcus, colon bacillus, staphylococcus or bacillus of tuberculosis. The last three are practically always found in the bladder secondary to infection in the upper urinary tract. The site of the primary infection can be determined only by renal catheterization and a complete study of the urine from each kidney, supplemented by pyelograms and ureterograms to determine any abnormality in the size and shape of the renal pelvis and ureters.

Functional tests of each kidney with phenolsulphonephthalein or indigocarmine are always made when there is any indication of renal disease. It is my practice to inject the dye intravenously rather than intramuscularly, for the results are more accurate by this method. If the dye is injected subcutaneously, the period of absorption into the blood stream is impossible to determine, and must vary to quite an extent in different individuals, depending on the condition of the subcuticular tissue, especially in regard to its capillary supply and the condition of the capillary walls. It is just as easy to inject the dye intravenously; there are no contraindications; and it removes a factor of uncertainty in the end result.

Vesical, ureteral or renal calculus. It is necessary to determine, so far as possible by x-ray, the presence or absence of stones in the urinary tract. If there are suggestive shadows on the films, a cystoscopic study is undertaken. If the shadow is apparently in the ureter, wax-tipped ureteral bougies are passed. The presence of characteristic scratches on the wax bead, when it is withdrawn, furnishes strong confirmatory evidence of stone.

Shadows in the region of either kidney are further investigated by introducing an opaque medium into the renal pelvis and ureter and making a second x-ray to determine the relation of the suspicious shadow to these structures. This gives very definite information of the location of the body producing the shadow in question.

Congenital abnormalities of the urinary tract. As more frequent and more thorough studies of the urinary tract are being made, anomalies are found to be more common than was previously estimated; they are now quite generally detected and in a rather large percentage of cases form the basis for a pathologic condition.

Diverticulum of the bladder is not uncommon, and because of the resultant urinary stasis in the diverticulum, there is practically always infection and generalized cystitis with its consequent urinary disturbance.

Anomalies of the upper urinary tract are very diversified, and may be listed as duplication of the renal pelvis, ureters, or both; fused kidneys, (socalled horseshoe kidneys) ectopic, cystic and polycystic kidneys; and gross malposition of the kidneys with resultant poor urinary drainage. This in turn produces back pressure, hydronephrosis and atrophy of the renal parenchyma. Any condition causing an interference with the passage of urine through the ureter, whether it be stone, kink, stricture, or pressure from without, will cause a dilatation of the renal pelvis, and pressure atrophy of the renal tissue. Whenever there is urinary stasis, there is nearly always infection. Infection in the upper urinary tract almost invariably results in vesical or urethral inflammation with an increase in the irritability of the bladder and more frequent urination.

Every patient who presents himself with the symptom of too frequent urination, or with too urgent a desire, deserves the most careful consideration to determine the cause of his difficulty. It may be the result of a condition very easily rectified; it may be due to an advanced lesion of the upper urinary tract just beginning to manifest itself; or it may be the beginning of an insidious condition which, if not detected and properly treated, will advance to a fatal termination.

Foci of Infection and "Wassermann-Fastness"

By ROBERT EMMET JAMESON, M.D., Davenport, Iowa

ABOUT four years ago, I became interested in the cause of positive Wassermann reactions which occurred in many patients who had had thorough antisyphilitic treatment. I began keeping a record of each case that had such a course of treatment, which consisted usually of the following: 12 intramuscular or intravenous injections of mercury, or 60 to 90 inunctions of mercury, followed by from 6 to 12 intravenous injections of neoarsphenamine.

If the patient had a positive Wassermann blood test, he was listed according to the length of time he had been infected with syphilis and classed as follows:

Recent infection—infected one year or less; *old infection*—infected one or more years, or inherited syphilis.

Records were kept under this classification of patients, and they were handled by the following systematized method: A case, after having a positive diagnosis of syphilis, was placed in one of the above classes—"A" (recently infected) or "B" (old infection).

If it was a *recent* infection (infection less than one year), usually 6 intravenous injections of neoarsphenamine were given, followed by 12 intramuscular or intravenous injections, or 60 to 90 inunctions of mercury. Following the mercury, 6 intravenous injections of neoarsphenamine were administered.

This was the first course of treatment the patient had and the day he received his last treatment a blood specimen was taken following it and a Wassermann test made, the results being noted and recorded.

If the Wassermann was reported positive, the patient was advised to have another similar course of antisyphilitic treatment, after which specimens of blood were collected and Wassermann tests made and recorded as before.

If the case was one classified as *old infection* (infected with syphilis one or more years previously, or having inherited syphilis), potassium iodide was usually given during one month before mercury was administered and was continued during the administration of the mercury.

Having completed and discontinued the potassium iodide and mercury, 8 intravenous injections of neoarphenamine were administered, and on the day of the last treatment a blood specimen was taken and Wassermann test made and the result recorded. Another specimen of blood was taken one month or six weeks later and a Wassermann test made and recorded. If positive (this being the first course of treatment), the patient was advised to continue with a similar course. After the second course of treatment, the result of the Wassermann test was recorded and a record also made of the following matters:

1.—General health of patient.

2.—Effect of treatment on general health.

3.—History of past ailments.

4.—Diet; regularity with which it was carried out.

5.—Regularity of treatment.

6.—Abstinence from alcohol.

Most free-clinic patients are much impressed by the results of their treatments, especially by the first course; for, in recent cases, the chancres and secondary rashes clear up promptly; if the old cases have any visible gummas or other secondary or tertiary lesions, these disappear; and almost all patients gain in weight, sleep better and feel greatly improved.

When, however, the visible evidences of disease have disappeared, they can see no necessity for further treatment, for a positive Wassermann test means nothing so long as they eat well and feel well.

Syphilologists find, now and then, a patient who is unable to take the inorganic iodides, mercury or the arsenicals. To such patients, I have given some of the organic forms of iodine to replace the potassium iodide, and I have changed the form of administration of the mercury when the patient was unable to take the form given and showed intolerance. Sulpharsphenamine was usually administered with satisfactory results to those patients who had an intolerance for arsphenamine.

Some patients have had two, others three and four courses of treatment as above outlined and still show positive blood Wassermann reactions after each course. This is the class of patients which first made me wonder if the medicines administered were effective. After establishing to my satisfaction that the drugs were effective, based on the regularity of treatment, general appearance, etc., and the result of the Wassermann test, and when I was satisfied that the patient, eager to be cured, was giving

his cooperation, a record was made of the facts that the patient was in no way interfering with the treatment and that the medication was effective in every respect, except the clearing up of the positive Wassermann blood reactions.

The patient was then placed under the classification of *foci of infection* and an effort was made to locate the focus. The tonsils, teeth and other organs were examined to determine possible foci of infection (patients always being advised to see a specialist in the condition suspected as the cause of the infection) and a record made of the results reported by the specialists.

If the specialists advised that the tonsils be removed or the teeth treated (pus pockets and decayed teeth, especially), the patient was advised to have these attended to, and the reason given for having this work done. About 49 patients in this class have been seen in the past four years, and the following cases will illustrate the points I wish to make.

1.—Mr. P. had a secondary rash when he was first seen, and was given three courses of antisyphilitic treatment similar to those mentioned, and after each course of treatment his blood Wassermann was positive. The tonsils were examined and found to contain pus; tonsillectomy was advised and was done. Another course of antisyphilitic treatment was then given and the blood Wassermann test has been negative for the past two years.

2.—Mr. J. C. Four courses of antisyphilitic treatment were given and the blood Wassermann test was positive following each course of treatment. The tonsils were examined and reported negative but the teeth found to have pus pockets and bridge work which had been in for several years. The patient had three teeth extracted and four cavities filled. (The cavities in this case were suspected as being foci of infection.) The blood Wassermann test, taken one week after the teeth were treated, showed positive. The patient was not treated further but advised to wait a month and have another Wassermann test made. This showed a negative result, and three tests since made have all been negative. This patient has had no treatment since the teeth were treated but the Wassermann test has been regularly negative.

3.—Mr. R. Had four courses of antisyphilitic treatment before he consulted me. The history of this case was that there had been a discharge of pus from his ear, from time to time, since childhood. He contracted syphilis when about 21 years of age. One physician gave him two courses of treatment, and the blood Wassermann test was positive, following the last course of treatment. Patient then consulted another physician who gave him two courses of treatment, and again the Wassermann test was positive following the last course. The patient had gained in weight and felt improved, for a time, after each course of treatment. The attending physician finally referred him to me and I gave him 12 injections of bismuth, and 8 of sulpharsphenamine, after which the blood Wassermann test showed: alcoholic antigen, negative; cholesterinized, 2 plus. This was the first time that an impression had been made on the Wassermann test which formerly was reported: alcoholic, 4 plus; cholesterinized, 4 plus.

The patient was quite well pleased with the result of this treatment and wished to take further treatment, but was advised to consult an ear specialist, who reported that the ear condition was, in his opinion, not a focus of infection but that the tonsils were both filled with pus, and a tonsillectomy was advised. This was attended to and the patient has since had 3 negative Wassermann tests.

4.—Mr. W. Had three courses of treatment, the blood Wassermann tests being positive after each course. He was advised to have his tonsils examined but to this he objected, stating that he had never had sore throat in his life. He was examined, however, and the tonsils were found to contain pus. Tonsillectomy was advised and was done. The patient stated that he never knew why he felt ill all the time, had no appetite and did not enjoy his food. Since the tonsillectomy, he says he is hungry all the time, food tastes good and he enjoys his meals, has gained in weight, and he does not have the tired feeling of which he formerly complained. The Wassermann test has been negative, although no treatment has been given since the tonsils were removed.

The above cases will give some idea of my reasons for believing that foci of infection are the possible cause of many cases of socalled Wassermann-fastness.

The tonsils and teeth that have been found defective and suspected of being possible foci of infection have not received the laboratory examinations that probably should have been made, due to the extra expense which the patients were unable to meet. This may be taken up later.

Summary

Syphilologists, in selecting antisyphilitic medication, should choose those preparations which are of known therapeutic value, and should be convinced that the patient has a tolerance for the drug administered and that, in that particular patient, it is therapeutically effective.

The patient should be fully informed of the seriousness of his infection, so that he will give his full cooperation in following instructions regarding his diet, regularity of treatment, proper rest and abstinence from all alcoholic beverages.

Blood tests should be taken and recorded at regular intervals and the necessity for this procedure should be fully explained.

Do not be too hasty in condemning a drug because the Wassermann test may show positive after what you consider a very thorough course of treatment. Remember the possibility of foci of infection.

Secure the hearty cooperation of at least one throat specialist, one dentist and, if necessary, an internist. Look for *foci of infection* in all your cases that do not respond to antisyphilitic treatment when all the facts have been verified and you can not account for positive Wassermann reports except by this hypothesis.

The Treatment of Bell's Palsy by Physiotherapy

By J. C. ELSOM, M.D., Madison, Wisconsin
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THE muscles of the face, like all other muscles, may be impaired in their function through lesions in the muscles themselves, in the nerves supplying them or in the cells of nerve origin. The facial muscles, with the exception of the levator palpebrae superioris, are supplied by the seventh cranial nerve, which emerges from the skull at the stylomastoid foramen. It gives off branches to the occipital belly of the occipitofrontalis and to the muscles of the pinna. It then turns forward, running in the substance of the parotid gland, and divides into branches which supply the stylohyoid and posterior belly of the digastric and all the muscles of the face, with the exception noted above.

While it was formerly taught that the facial nerve was purely motor in function, it has now been shown that it contains sensory fibers which come from a small, somewhat cone-shaped area including the skin of the external auditory canal and part of the outer ear. The facial nucleus is connected with the other cranial nerve nuclei by association fibers, especially closely with the eye muscle nuclei, as the eye and facial muscles must frequently act synchronously. It has also connection with the nuclei of the optic thalamus, so that mental states are reflected in the facial expression, more or less involuntarily and automatically.

Etiology

The facial nerve may be injured during its passage through the temporal bone by suppuration of the middle ear, or by operations on the mastoid antrum; and after its emergence from the stylomastoid foramen, by cold, by involvement in malignant growths of the parotid gland, and by operations on the parotid gland.

The nerve is susceptible to the various causes tending to produce neuritis in general; but, while these causes may act as predisposing, there are local factors which seem to play the chief role in determining an attack of facial paralysis. In infants delivered with forceps, the pressure of the blades upon the side of the head sometimes injures the facial nerve and causes paralysis on that side of the face. Mumps and cervical adenitis occasionally involve the facial nerve. A common local cause is disease of the middle ear or the mastoid cells, which may spread to the facial nerve. The great majority of cases, however, are attributed to "cold", often as a draft upon the face. We must explain this by the weakened resistance of the nerve after sudden or long continued exposure to cold, which paves the way for the action of some toxic or infectious agent. It has been suggested by Phillip that the large size of the nerve and the smallness of the opening of the stylomastoid foramen make any swelling of the nerve a ready cause of pressure.

Bell's palsy is easily recognized. The face on the affected side is immobile and its wrinkles become smoothed out. The lower lid droops and, because the punctum lacrimale is not in contact with the conjunctiva, tears trickle over the cheek instead of passing into the lacrimal duct. The eye is more widely open on the affected side, and cannot be voluntarily closed; on making the attempt, the eye-ball rolls upward. The patient cannot purse his lips, nor whistle. When he laughs, or attempts to show his teeth, the mouth is drawn strongly over to the unaffected side.

The prognosis, as in the case of other nerve disorders, is largely based upon electrical reactions. If reaction is normal, or

nearly so, the prognosis for a fairly early recovery is good. If the reaction of degeneration is only partial, recovery may be expected within perhaps three months; complete reaction of degeneration gives a doubtful prognosis. Recovery may take six months or a year.

Treatment

The treatment of Bell's palsy by physiotherapeutic methods alone seems productive of very satisfactory results. In most cases, the patient is considerably alarmed concerning his condition and is apprehensive as to the outcome; he is often fearful of some mysterious and destructive brain lesion. Therefore, at the outset, the patient should

Fig. 1. Method of Applying Diathermy

be encouraged and his fears allayed by giving a hopeful prognosis. As far as possible, the patient may engage in his usual occupation, avoiding mental and physical strain and worry. The usual advice as to hygiene may be given, stressing the importance of sufficient sleep, moderate exercise, and attention to diet and elimination. Possible foci of infection should in all cases be discovered and removed if possible.

Heat to the affected parts of the face, ear and mastoid region should be employed. Its effect seems very beneficial. The heat may be employed in several ways. Hot water bags, used at home, are helpful. The radiant heat and light from the modern "deep therapy" lamps is our own routine treatment. The action of the smaller lamps, known as the "Thermolite" is very efficient. Recently, the Burdick Co., of Milton, Wis., have offered to the profession the "Zoalite" lamp, which is rich in the infra-red rays and gives practically no luminous glow. This small lamp is especially valuable in Bell's palsy, because the disagreeable shining of the light in the affected eye of the patient (which usually cannot be closed) is eliminated. Fifteen or twenty minutes of this radiant heat is followed by diathermy, with the following technic: two metal electrodes are connected to the D'Arsonval terminals of any good, resonant high-frequency machine. In our own work, we seat the patient near a table, with his elbows resting comfortably. He holds in his hands two Fischer hand electrodes (see Fig. 1), one placed over the affected part of the face near the angle of the jaw, the other on a similar part of the unaffected side. The current is turned on slowly and a few minutes used in gradually advancing the milliamperage up to about 500. The sensation is one of a pleasant, sedative heat. The treatment should last from twenty minutes to a half hour. It is better, occasionally, to shift the position of the electrode on the affected side and, for a part of the treatment, apply it near the mastoid region. The next step in the treatment is the application of the galvanic, slow sinusoidal current.

The older textbooks recommend mostly an expectant form of treatment with absolute rest. Our own experience has been that the sooner the treatment is begun, the better the results. Consequently, we begin the heat and electric treatment at once. The galvanic, slow sinusoidal current is given, using two equal sized electrodes (about an inch and a half in diameter); one of these placed in front of the ear, sometimes on the mastoid region, the other moved about along the

Fig. 2. Applying to Galvanic Sinusoidal Treatment

motor points of the affected muscles. (See Fig. 2.) These points are best located near the angle of the mouth, the lower and outer border of the nose and the side of the chin. A mild current is given, especially in recent

cases, and continued for only a minute or two; just enough to produce a mild muscle contraction. Later, the stimulation may be increased, and the time of treatment lengthened to five or ten minutes.

In addition, we make use of exercise and massage. The patient is encouraged to make an effort to use the affected muscles and to do any voluntary muscular effort of which he is capable. Blowing up the cheeks, and trying to prevent the escape of air from the affected side of the mouth is a good form of exercise.

When improvement begins to take place, one of the first signs is the extension of wrinkles on the forehead when the patient raises his eyebrows by muscular effort. The mouth next shows improvement; in most cases the ability to close the eye completely comes last. If, during sleep, the eye is imperfectly closed, our own practice in some cases is to use a small strip of adhesive plaster applied from the cheek to the forehead, pulling the eyelids together, thus preventing an undue sagging and stretching of the unused facial muscles.

The last form of the treatment is the application of massage. This is given after the muscles and tissues are well heated; the movements are made with the finger tips, gently kneading and stroking the affected muscles. All of the forms of treatment enumerated are best given daily or, at least, three times a week.

Case Reports

Case No. 1. H. E. W., white, male, aged 26; previously in good health; well nourished; occupation, farmer. First seen at the Jackson Clinic, June 27, 1925. Family history, negative. Went in swimming June 25th and afterward drove his car ten or twelve miles, a cool wind blowing on his wet hair. The next morning noticed complete facial paralysis on the right side. Applied for diagnosis and treatment the next day. Treatment, as indicated above, given twice a week and heat applied several times daily at his own home. Five diathermy treatments given at the Clinic. Reported July 18th entirely relieved, with full muscular movement. The right lower lip was slightly atrophied at the corner from disuse.

Case No. 2. White, male, aged 40; traveling salesman. Previously healthy. States that the door of his room in a hotel blew open during the night, when he was asleep. The next morning, while he was preparing to shave, he was greatly alarmed to find that he could not use the muscles on the left side of his face. Reported for treatment the following day. Received diathermy and galvanism four times a week for four weeks. Recovery progressive, with total restoration at the end of four weeks.

Case No. 3. Mr. L., traveling salesman; drove his car a great deal, often taking long drives. One morning, after a long drive, he tried to whistle as he was dressing, and found he was unable to do so. Complete facial paralysis, for which he received no treatment until ten days had elapsed. Developed a multiple neuritis, shoulders, arms and hands being affected. Facial paralysis cleared in two months, after three treatments weekly. General diathermy benefited his neuritis, and general ultraviolet radiation was continued for a month longer, with success.

Twelve similar cases have been treated during the past six months, all attended by good results.

Conclusions

Treatment for Bell's palsy should be instituted immediately at the onset.

Prognosis depends on the normal response to galvanic stimulation. Diminished contraction of the facial muscles may be expected to some extent; if there is no response to galvanism, the case is severe, and will probably take many months before recovery.

The application of radiant heat and light (convective) and diathermy (conversive) is indicated.

Galvanic stimulation of the muscles should be done carefully and for periods of short duration, with gradually increasing seances.

Massage and active exercise are helpful.

The Use of Alpha-Lobeline in Asphyxia Neonatorum

(A Case Report)

By WALTER A. COX, M.D., Baltimore, Md.

I CONSIDER the following case of sufficient interest and importance to warrant my writing an article upon it.

M. B.; female; housewife, age 27 years; came to the hospital with acute nephritis due to pregnancy. The last catamenia, October 9, 1924; expected confinement July 16, 1925. There was nothing of unusual interest in her history, and the pregnancy appeared to be a normal one. The only toxic symptoms were mild nausea and vomiting during the second month of the pregnancy. She was in good physical condition, and her pelvic measurements were such as to indicate an easy delivery. Under hospital treatment, the acute nephritis showed gradual improvement, up to the time of labor, after which it disappeared.

Labor began at 1 a. m., July 17, the first stage lasting 10 hours, the second stage 45 minutes, and the third stage 30 minutes. The fetus was in the L.O.A. position, and was delivered without any difficulty. I observed upon delivery that the umbilical cord was wound tightly about the infant's neck, and that the infant did not respond to external stimuli by breathing, but instead presented a typical picture of asphyxia pallida—the second or severe degree of asphyxia neonatorum. The face was pale and deathlike, and the entire child was cyanosed. The cord was flaccid; there seemed to be an atony of all of the voluntary muscles; the heart action was weak and irregular.

There were no indications that the asphyxiation came from maternal causes because there seemed to be no disturbance of the placental circulation during labor; there was no prolonged second stage of labor; there was no use of ergot in the second stage of labor; there were no convulsions or hemorrhages; and the mother was living. The cause evidently was related to the child. There was no early separation of the placenta and there was no pressure on the brain, but there was pressure on the cord which was wound tightly around the infant's neck twice. The case, therefore, was one of intrauterine asphyxia neonatorum of severe degree.

I cleared the mouth and pharynx of a slight amount of mucus, and began to work industriously to start respiration by the usual physical means. I placed the child in hot and cold water alternately, and meeting with no response, I performed the Dew method of artificial respiration. This was also unsuccessful, and I resorted to inflation of the lungs. This brought no beneficial results. These efforts having been unsuccessful in stimulating respiration, I turned to chemical means of saving the infant's life, and there were two drugs that presented themselves to me: first, there was adrenalin, the always-used cardiac stimulant; second, alpha-lobeline, the respiratory stimulant. Inasmuch as the heart had been beating during the first few minutes of life, I believed that the respiratory center was primarily involved, and that the heart was secondarily involved as a consequence of venosity of the coronary circulation. The respiratory stimulant was to be preferred, therefore, to the cardiac stimulant, and as stated above, the alkaloid alpha-lobeline suggested itself to me. By this time, thirty-two minutes had elapsed since the child was born, and it was deeply cyanosed.

Alpha-lobeline is one of the three crystalline alkaloids isolated from the herb *lobella inflata* by the chemist Heinrich Weiland, of Munich. According to Kurt Peters, it is quite different from the old Droser lobeline sulphate, etc., in that alpha-lobeline is a pure alkaloid in crystal form whereas the old lobeline preparations are a crude mixture of various alkaloids of the plant and various resins. Alpha-lobeline directly stimulates the respiratory center causing respiratory movements, increase in volume, and a vigorous interchange of gases, and it is clearly indicated in all forms of central respiratory depression. It becomes effective immediately upon injection and continues so for from a half hour to an hour and a half. It can be repeated as frequently as desired, or its effect made continuous by prolonged infusion without danger of cumulative effect. Peters further says that alpha-lobeline is indicated in all cases of apnea and oligopnea, and in this

case of respiratory depression by endogenous poisons it is specifically indicated.

I had my assistant fill a syringe with gr. 1/20 of the preparation alpha-lobeline, and injected it into the infant's heart. In less than a minute the child gasped and began to breathe. In a short time the respirations assumed normal proportions, and the cyanosis cleared. The infant appeared to be quite normal, and there were no signs of its having been asphyxiated. The customary care was taken of the mother and child, and they were removed to their quarters. Careful examination of both the mother and child was made over a period of two weeks, and there were no abnormalities of any kind.

I had heard of this drug many times before, but this is the first time I have had occasion to use it. The results speak for themselves, and I intend to carry a small case of it in my bag from this time on.

For those desiring to familiarize themselves with this drug, the following bibliography may be helpful.

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Electro-Desiccation of Tonsils

By HARRY M. THOMETZ, M.D., Chicago, Illinois

THERE have appeared, heretofore, in medical literature, statements wherein the procedure of the electrocoagulation of tonsils has been condemned on the ground that very intense edema and prolonged, severely painful inflammatory reactions and dangerous involvement of the peritonsillar tissues have resulted. It is now coming to be recognized that, with a properly developed technic, these effects can be minimized to a point where as contraindications they can be considered negligible.

The development of a proper technic involves these several considerations:

First. Choice of an efficient machine.

Second. Choice of the correct type of current.

Third. The use of suitable instruments and electrodes.

Fourth. The selection and control of dosage in such a manner as to insure penetration of heat in destructive intensity through the tonsil and up to the capsule without involving the tonsillar pillars or the tissues of the sublying tonsillar floor.

To aid oneself in arriving at a solution of these problems and to avoid, in the early stages of one's experience, disagreeable and dangerous consequences to patients, one should not undertake to do this work without first endeavoring to understand and accurately comprehend the exact effects of the D'Arsonval and Tesla currents while experimenting on pieces of beef. The effects obtained in this way are equal and analogous to those obtained when working on the human being.

Referring to the first item mentioned for our consideration, the machine to be used should be resonant, of ample capacity and fitted with an accurately controllable spark-gap. To be resonant, assuming the proper process of manufacture, it is necessary that Leyden jars be kept filled to the proper level, that the points of the spark-gap be clean and that the transformer, if of the oil-immersed type, be full of oil. A foot switch is a necessary adjunct.

The Tesla Current

Referring to the second item that was mentioned for our consideration, namely, type of current, we are all aware of the effectiveness of a bipolar application of the D'Arsonval current in producing tissue necrosis. Not all of us are so familiar with the action of the Tesla current; by Tesla, meaning that current which is taken from the single, socalled unipolar outlet as provided on all high-frequency machines.

Fulguration refers to the destructive action on tissue resulting from the actual passing of Tesla sparks. The McFee tonsil electrode, or fulgurator, is an instrument on the market which consists essentially of an insulated handle and a needle fixed in the center of, and extending to a distance of about one-fourth of an inch from, the open flanged extremity of a hollow glass

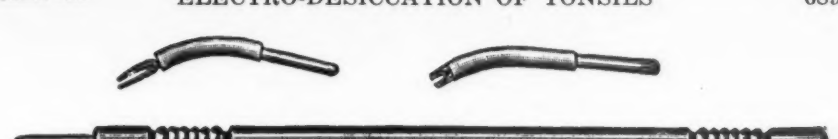

Illustration shows the two types of electrode tips, also the pillar retractor with insulated handle, which Dr. Thometz uses in Electro-Desiccation of tonsils

tube. Thus the direction of sparks can be controlled. Fulguration has been advocated as a method to reduce rather than to completely remove the tonsils at one sitting.

Dr. Wm. L. Clark, of Philadelphia, has first described what is known as the desiccation method of removing tonsils. Clark's method has been to use an ordinary knitting needle held in an insulated handle, the point of the needle being actually inserted into the tonsil and the Tesla current being employed. The advantages of desiccation over fulguration are:

1.—Deeper penetration of necrosis.

2.—Causation of less pain.

The term "coagulation" refers to that necrosis of tissue which follows from the action of the D'Arsonval current. Using the same electrode and the same setting of rheostat and spark-gap and actual contact of the electrode with the tissue, the D'Arsonval current produces much more heat than the Tesla, as one might anticipate from its higher amperage; naturally, also a greater spread of heat by radiation; therefore, more necrosis of tissue, more spread of necrosis, and the formation also of a relatively large socalled perithermic zone of extreme tissue irritation and semidevitalization.

Using the Tesla current, it is found, that one can more readily produce effects that are sharply localized and, between the coagulated and uncoagulated zone, a line of demarkation that is sharply defined.

Further observation shows a very moist, succulent condition of the tissues in the zone of the D'Arsonval coagulation and a relatively dry condition in that of the Tesla. This finding has its simile in the experience of the ordinary cook who knows that by subjecting a steak, for instance, to a short intense heat, it retains its juice and flavor, while a long and slower frying dries it out.

The D'Arsonval Current

In the light of these facts, we begin to understand the frequent occurrence of edema following a D'Arsonval coagulation. This edema in its nature may be regarded as: (a) primary, the immediate result of the severe treatment of tissue cells, with an outpouring of fluid, from the cells, into the tissue spaces; this free moisture accumulation then favoring the further spread of thermal irritative effects into a wide area of adjacent tissues; and (b) secondary, as merely part of an inflammation that will follow a severe thermal, in the same way that it will follow a bactericidal or chemical irritation, and which is manifested, pathologically, by capillary hyperemia and transudation and exudation, and clinically by redness, swelling and pain of the tissues about the coagulated zone.

With these concepts before us, how shall we solve the problem of successful tonsil removal by electrocoagulation? In two ways:

1.—By understanding the D'Arsonval current and using it properly, or;

2.—By discarding, as the author has done, the D'Arsonval in favor of the Tesla.

With the D'Arsonval current, it is best to use the minimum strength of current that will give sufficient intensity of heat to coagulate and the smallest possible diameter of electrode that will do the work. It is well known that the smaller the active as compared with the indifferent electrode the more sharply circumscribed becomes the heat in relation to the former. On this account, while the use of a fine-needle electrode would be quite safe, the use of a thicker one would be more dangerous, and the use of a button electrode might easily entail serious consequences. The use of an electrode with a small terminal contact, whether on the surface or in the depth, naturally requires a greater number of current applications in a greater number of positions. This again is an advantage, as one may readily assume that less reaction will follow from smaller and divided doses than from one or two tremendous thermal shocks.

Referring to the third item that was mentioned for our consideration, namely, the use of suitable instruments and electrodes: The illustration above shows two varieties

of a special copper tip which the author has devised for insertion in a modified "Plank" holder. These tips are bent to a curve which enables the operator working ambidextrously, that is, with the instrument held in the right hand for the right tonsil and vice versa, to reach most easily all parts of the area to be destroyed. One of these tips is intended for surface application only and, by having two grooves at right angles filed into the extremity, it is provided with four short teeth which prevent slipping. The second of the tips is provided with two thin prongs, each about one-fourth of an inch in length and separated by a distance of a little more than one-eighth of an inch; this is intended for insertion into various parts of the depth of the tonsil after the surface portion has been destroyed by the action of number one. The illustration shows also a special retractor with insulated handle. The toothed portion of this instrument, at right angles to the shaft, may be hooked behind, in front, or to any part of the anterior pillar and can be relied upon to maintain its hold, enabling one to expose any part of the tonsil that it is desired to work upon. After the retractor is once placed, it is best held in steady and proper position by an assistant who stands behind the patient's head.

Referring to the fourth item that was mentioned for consideration, namely, the selection and proper control of dosage, it is desirable, as has been suggested before, to use a strength of current that will not coagulate too rapidly. The setting of rheostat and spark-gap should be determined for the individual machine by experimenting on surgically excised tonsils or on pieces of beef. The author, working on one of the old model machines with a wax transformer, uses the third button—with very large tonsils the fourth button—of the rheostat, and one quarter of a turn on the main knob of the spark-gap. Working with the latest model of machine, he uses the eighth to tenth button of the rheostat with a quarter turn of the spark-gap.

The machine connections for the operation are as follows:

1.—Patient holds in both hands an autocondensation handle, the cord of which is attached to the meter.

2.—The tonsil electrode is connected with the Tesla outlet by a light and flexible cord. The meter, with current running under the above conditions, will register about four hundred milliamperes.

One final point remains to be settled, namely: the choice of an anesthetic. Inasmuch as the tonsils are not a very sensitive portion of the anatomy in any event, also in view of the fact that coagulation of tissue is not a very painful procedure, a simple local anesthetic is all that is necessary. If, on account of a child's timidity, general anesthesia is deemed requisite, then hospitalization and skilled surgical enucleation is probably the better procedure.

The use of a needle and syringe, for the purpose of bringing about infiltration anesthesia, is not considered advisable. In the first place, it has a bad psychological effect on the patient. In the second place, mere topical applications are sufficient. In the third place, the introduction of extra fluid into the tissues may do harm by favoring undue spread of heat and coagulative effects.

It is the author's practice first, with a rubber bulb powder-blower, to insufflate powdered anesthesin over the surface of the fauces and pharynx. This produces light, surface anesthesia and reduces the pharyngeal reflexes. Second, a metal applicator with curved tip wrapped in cotton, after being dipped successively into 1-1000 adrenalin and cocaine flakes, is used to swab over the tonsils and around their margins just inside the pillars. The whole anesthetising procedure does not require more than two or three minutes, after which the operation itself requires very little additional time.

Treatment of Obesity by Nonspecific Protein Injections

By H. J. ACHARD, M.D., Glendale, California
Managing Editor, *The Endocrine Survey*

IT IS a peculiar observation that certain substances may exert seemingly contradictory or paradoxical effects, that they may be stimulants or sedatives according to circumstances; in other words, that they have a tendency to induce disturbed physiological processes to return to normal. J. St. Lorant points out that this peculiarity of action is characteristic especially of the sensitization which is produced by the parenteral introduction of nonspecific proteins. This procedure tends to increase physiological processes and to change them in the direction of what is physiological, affecting not only pathological conditions but also constitutional peculiarities which are not quite normal. Under the influence of parenteral protein sensitization, chronic inflammatory processes at first pass through a stage of activation (by way of reaction) after which they show a tendency to healing.

In pedatrophia (tabes mesenterica) of nurslings, serum injections have been shown to bring about a notable increase in weight; while, in adiposity, a loss of weight is produced. In other words, the protein therapy stimulates the *vis reparatrix naturæ* and, therefore, may induce effects that, according to the case concerned, are diametrically opposed, *i.e.*, gain and loss of weight. St. Lorant has shown that protein substances introduced parenterally may act by inducing effects involving various physiological processes, notably those comprised under the term organotherapeutic.

In the article referred to, the author reports certain peculiar observations gained from a combination of thyroid feeding and foreign protein sensitization in treating adiposity. He records a number of cases which are of interest:

Case Reports

Case 1. Female, 22 years old. In her second or third year, she had *poliomyelitis anterior acuta*, which was followed by a partial loss of vision. After that, her body weight increased greatly. The appetite was never great, and she drank little. Her ability to learn in school was good, and she was an apt pupil. The father was obese. The patient was the first child.

She was 5 ft., 1 in. tall. The adiposity affected all portions of the body, but was especially marked on the neck, abdomen, and the extremities, even to the dorsal surfaces of hands and feet. The glistening face felt greasy to the touch. The fingers could be overextended. The hair was scant. Her type corresponded most nearly to Engelbach's juvenile thyrogenic adiposity. The internal organs revealed nothing of importance.

The treatment was started with dietetic restriction, the patient receiving barely 800 calories a day. At first, she lost weight rapidly, but gradually this ceased. Then the patient was put into the sweat-box up to one hour a day, diet and absolute rest in bed being insisted upon. However, this procedure brought about further weight reduction only at its beginning. Next, thyroid treatment was commenced, the patient receiving 1.2 Grams (18 3/5 grains) of thyroid substance (Thyroidin, Merck) a day. The effect was the same as before.

Then the remarkably favorable effects of protein injections were made manifest. After one month's rest, the patient was subjected to a combination of thyroidin feeding and protein injections. There was no restriction of the diet, but absolute rest in bed was insisted upon. In the course of one and a half months, this patient's weight gradually diminished 24¼ pounds. Up to that time, in spite of greatly restricted diet, sweating and thyroid treatment, the diminution had been barely 4½ pounds a month.

Finally, the effect of protein injections alone was observed; the reduction was hardly noticeable, although the diet was restricted. In all, the patient lost 59½ pounds and, so far (three years since treatment), she has not gone back to her former weight.

Case 2. A woman, 41 years old, who had been operated on in 1908 because of chronic disease of the adnexa, both ovaries having been removed. Since then, the patient, who had before been slender, had steadily become heavier. She said that she had never been a large eater. She had been treated variously for her obesity; had taken dietetic treatment, thyroid feeding, working therapy —all without notable results. It appeared from the family history that her mother was stout, and a maternal relative had diabetes. The patient was 5 ft., 7 in. tall and weighed 209.87 pounds. She was pale and her face appeared puffy. The fat was distributed equally over the entire body except that the panniculus adiposus was more markedly developed on the hips. For years, the patient had suffered from cystitis; otherwise, physical examination was negative.

The treatment commenced September, 1921. During the entire time the patient

was permitted to eat and drink as she pleased. For a certain time, she ingested an amount of food that corresponded to a fattening cure. Her daily dose of thyroid substance (Thyroidin Merck) was 0.6 Grams (9 grains), and varying amounts of foreign-protein substance were given—always in the forenoon. Until the next morning, the patient usually increased in weight (corresponding to a negative phase) while the diminution in weight followed on the day after that (the positive phase). Frequently the patient had fever after the injection, sometimes as high as 100° F. Such a temperature rise is unusual in adiposity and possibly may be attributed to the cystitis. During the entire time, the patient maintained quite moderate rest in bed. In the course of three months she lost 48½ pounds, and since then has regained barely 11 pounds, although she eats as she pleases. She is in good health.

This case is of interest because sometimes the protein injections were followed by relatively high fever.

Case 3. In this case the slight temperature reactions to protein injections, that are typical for adipose patients, are shown. They indicate in what manner the intervals between injections are to be considered. The patient, a woman 45 years old, has been obese since her twenty-first year, that is, from the birth of her second child. She was always in good health. Obesity was frequent in her family. One sister of the patient died of diabetic coma. The patient was the youngest of six children. In 1913 she had submitted to an obesity cure which consisted in combined dietetic and thyroid treatment. At that time she lost 15.43 pounds in two months, but suffered under the restricted diet so much that she had to interrupt the treatment. Since then she has visited Marienbad, taking several courses there, but without notable results. At present, the patient is 5 ft., 7 in height, and weighs 224 1/5 pounds. There are immense fat deposits on the chin, abdomen and head. The patient is vivacious and active and her face has a fresh color. The menses show nothing irregular, and physical examination is without special interest.

She was treated as an out-patient, although she remained in the clinic for the first few days. She received alternately 0.2 Gram and 0.1 Gram of thyroid substance three times a day (3 grains and 1.5 grains). During the first two months, she received from 3 to 5 Cc. of foreign protein every fourth day and, later, every third day. Fever reactions to the protein injections were either entirely absent or very slight. This observation is, in general, characteristic of adipose patients. In the course of three months, this patient lost 52¼ pounds. When the intervals between the protein injections were shorter (3 days), there was a greater loss of weight. She is now in good health. One year has passed since the close of the treatment and no gain in weight has been observed.

Thyroid with Protein Injections

The author has treated fourteen cases in all, of which eight were attended as out-patients. Three of the fourteen were males. The three case histories that have been presented here show almost all peculiarities of the treatment. In the first cases, the thyroid medication and the protein injections were given simultaneously. Later on, the thyroid medication was given alone at first, the protein injections being commenced only when the body weight had become stable. The quantity of thyroid substance was always small: doses of 0.3 to 0.6 Gram [with the exception of Case 1—H. J. A.]. In some cases, this medication was continued through the entire period of treatment; in others, a one-week rest was observed after three weeks. Rest seems to be preferable in some patients who are sensitive to thyroid medication. Suitable changes in dosage seem to be favorable in regulating the diminution of weight.

The foreign protein was at first milk, from 3 to 7 Cc. being given by intramuscular injections. Later, other substances were employed. The protein injections were given at regular intervals, usually from 3 to 5 days apart. The effect upon loss of weight is the greater the closer together the injections are, but it does not seem advisable to shorten these intervals too greatly; in fact, many reasons might be given which demand a certain period of time between injections. It is well to permit the reaction, *i.e.*, the loss of weight following each protein injection to pass off completely before giving another. Usually the loss of weight commences on the day after the injection and continues two or three days. Aside from the local reaction at the point of injection, the temperature reaction also must go down completely before another dose is given.

In order to determine the positive phase, the body weight is ascertained before breakfast. After this has been done for the first few days of treatment, the weighing may be limited to the days after injection, because usually the period of positive and negative phases in individual patients remains approximately the same.

As already said, obese patients do not usually react to moderate protein injections with fever temperature. If the temperature rises to 99.5° to 100° F., great care is required. It is possible that acute or chronic inflammatory processes may be present in the organism which may be responsible for

the fever. In Case 2, for instance, there was cystitis. It is possible that an unusual fever reaction may be due to an unduly high dose of the protein. Pulmonary phthisis, chronic recurring bronchopneumonia, and all cases of tuberculosis must be excluded from the treatment.

Unrestricted Diet

As for diet, no restrictions are practised. In fact, some of the patients have eaten very heartily without influencing the diminution in weight. In one patient, the severe restriction in diet, which he followed voluntarily, resulted in violent migraine, which was relieved when he ate more generously. Absolute rest in bed is not necessary.

It is not immaterial how rapid the loss of weight is, and it makes a difference whether the patient is to lose 20 or 40 or more pounds. If 20 pounds are to be lost, the diminution need not be slow. However, when there is to be more than that amount, it is better to be deliberate about it in order to avoid undue wrinkling of the skin, and also nervous heart irritation. For that reason, it is better to permit no more than a loss of 8.8 to 11 pounds a month. In cases in which a loss of more than 44 pounds is desired, it is best to arrange the cures in various stages, diminishing the weight in each one by 22 to 33 pounds, and then to permit an interval of from one to two months to elapse between the separate stages.

In the treatment of Dr. St. Lorant's last cases, the patients were instructed to subject themselves to light- and air-bath treatment during these intervals.

The physical peculiarities of the patient must be considered in regulating the loss of weight. For instance, if a patient is 5 ft., 7 in. tall, and weighs 264 pounds, the loss of weight should not be the same as it would be if he weighed 209 and still were to lose 55 pounds. In the less heavy patient, the loss of 55 pounds is a more serious affair and must be watched with greater care.

In terminating a course of treatment, the protein injections were first omitted and then the thyroid dosage was gradually diminished. The patients continued to eat as they pleased and reported every week, then every month, to have their weight controlled.

Conclusions: The observations made in these fourteen cases suggest that the method is not only simple and certain as to results, but it has the advantage of an unrestricted diet and a treatment that can be carried out even when the patient remains in bed. So far, only one of these patients has experienced a notable gain in weight, and it seems possible to obtain permanent results by this method.

Quinine and Urea Hydrochloride in Rectal Conditions

By M O. ROBERTSON, M.D., Bedford, Indiana

THE regular medical profession has neglected the use of quinine and urea hydrochloride and the quacks have made lucrative use of it.

As early as 1910, W. O. Green, in the *J.A.M.A.*[1], reports the use of quinine and urea hydrochloride in 1-percent solution in anal fissure and hemorrhoids but no general use of the drug followed.

As evidence of neglect of its use, we find Dr. A. B. Graham, of Indianapolis, reporting, ten years later, in *Journal of the Indiana State Medical Association*[2], the use of quinine and urea hydrochloride in anal fissure as an original method.

Having had excellent results with this drug in rectal conditions, I desire to detail my experience so that others may profit by its use.

Quinine and urea, in ½ percent solution, is a local anesthetic and gives more prolonged anesthesia than any other drug now known. For this reason, it is useful in painful rectal conditions from whatever cause.

According to the researches of McCampbell[3], its anesthetic effect is due to coagulation of the protoplasm of the peripheral nerves, and no doubt its prolonged anesthetic effect is due to this action.

Quinine and urea hydrochloride in a 4-percent solution has a decided hemostatic effect, especially as regards the capillaries[3]. Stronger solutions than ½ percent cause

an induration of the tissues which Hertzler, Brewster & Rogers[4] attribute solely to a fibrinous exudate, which is later absorbed. This fibrinous exudate, no doubt, prolongs the hemostatic effect, which is so effective in causing atrophy of hemorrhoidal tissue.

The prolonged anesthetic and hemostatic effects of quinine and urea hydrochloride render it the most useful single drug for rectal conditions.

The ½ percent solution injected into the anal canal, in 5 to 20 Cc. quantities, gives remarkable relief from pain. The prolonged anesthetic effect allows the sphincter to relax, and this in itself hastens healing of fissure or ulcer of the anal canal. The drug possesses no appreciable antiseptic action and, therefore, has no special healing qualities. It aids in healing merely by breaking the vicious circle of "pain causing sphincter spasm, and the spasm increasing the pain".

The prolonged hemostatic effect causes atrophy of hemorrhoidal tissue, but more than one injection is frequently needed.

Either the ½ percent or stronger solution cause slight pain on injection, which immediately subsides, to begin again in twenty to thirty minutes. This varies in different individuals and, in fact, in the same individual at different treatments. All pain will subside within three hours and great relief from the original pain is experienced. If the pain is *severe*, hot compresses to the anal region give great relief, or codeine, gr. ½, may be given if necessary.

The next day, after the injection, there may be a slight soreness from the induration caused by the strong solution, and injection should not be repeated until this soreness has disappeared. If the induration is not outside the anal canal, the soreness will not last many days. Injection should not be made oftener than three times per week and twice will usually be sufficient.

I have no set number of times to inject these patients. In hemorrhoids, I inject until atrophy is complete. Frequently, small fissures will heal promptly after one injection, but, in severe cases, as long as two months may be necessary as improvement progresses. I see them once per week, for a few times, before discharging them.

I use a 10 Cc. Luer syringe with 23-gauge needle, 3 1-2 inches in length, which is sterilized before use. At first, I used stock solution, using merely distilled water and not boiling the solution. I now use hypodermic tablets of quinine and urea, and make my own solution by using 2 grains per ounce of distilled water for my anesthetic solution and 16 to 20 grains per ounce of distilled water for the hemostatic solution. It is not necessary to have an absolutely accurate solution, quantitatively. The amounts as given are entirely satisfactory.

I have the patient lie on the left side with thighs flexed on the body; the anal region is cleansed with water and a pledget of cotton and if there is a large amount of hair the region is shaved, but no antiseptic applied.

I then apply a 15-percent cocaine solution in the canal with a small mop of cotton on a toothpick, using some soluble lubricant of Irish moss, or sterile vaseline will do. Three or four toothpicks are prepared with the cotton; one is dipped in the cocaine, then in the lubricant and gently introduced into the anal canal. Of course, after use, it is discarded.

I apply the solution all around the inner part of the canal and give a short time for anesthesia to take place. These patients are usually very sensitive and gentle tactics are necessary.

After applying the cocaine solution I request the patient to strain as though the bowels were to act and can usually locate the trouble. If not, I *then* pour about 10 Cc. of the quinine and urea solution into a sterile medicine glass and inject into the posterior part of the anal canal. Five Cc. of a ½ to 1 percent solution of procaine, followed by 5 Cc. of quinine and urea anesthetic solution is better than the quinine solution alone. The procaine is valuable for its quick action and the quinine and urea for its prolonged anesthesia. After the effect of the procaine is produced, a gentle dilatation can be made and the pathological condition located.

In fissure or ulcer, the solution is injected beneath the lesion in quantities not less than 5 Cc. nor more than 10 Cc. In hemorrhoids, the strong solution is injected directly into the mass but should never be injected into a mass that can not be returned to the anal canal, as this causes induration and pain for many days.

Of course, if the lesion can not be recognized, the patient should be referred to someone skilled in this line of work, but no harm will be done by injecting 5 Cc. of ½ percent quinine and urea solution,

which will, in most cases, give considerable relief from pain.

The following case reports are only a very few of the many in which I have used this drug with success. These cases will show its use in pain, hemorrhage and hemorrhoids. In very sensitive fissure, the initial injection causes severe pain, but the relief afforded compensates the patient, who is always enthusiastic and grateful.

Case 1.—Mrs. H.: Complained of continuous dull aching pain with occasional sharp shooting pains through the anal region. Examination showed the anal mucous membrane chronically inflamed. Cotton was blood-stained when gently rubbed over it. There was contraction of the sphincter, as is always the case in pain of this region.

Treatment consisted in biweekly injections of 10 Cc. of ½ percent solution of quinine and urea hydrochloride, under the mucous membrane, with gentle dilatation of sphincter and application of a 15-percent solution of mercurochrome. Relief was obtained after this treatment, but such patients always make slow progress to recovery.

Case 2.—Mr. G. came with hemorrhoids. At each defecation, a mass, the size of a man's fist, protruded and it was necessary to replace this with the hand. Complete relief was obtained by injecting 10 Cc. of 5-percent solution of quinine and urea each Wednesday and Saturday, and no further trouble was experienced for two years.

Case 3.—Mrs. P. came with history of an operation, 16 months previously, for a protruding mass and ulcer. She was in severe pain and stated that her bowels never acted except after enemata, following which she cried with pain and was unable to do her household duties for three or four hours. Examination revealed a long fissure, possibly the result of her operation sixteen months before. Manipulation, after the use of a 15-percent cocaine solution locally and using the gentlest tactics, produced such severe pain that she literally wept and it was necessary to give her 1-4 grain of morphine, hypodermically, before she could leave the office.

Treatment consisted in biweekly injections of 5 Cc. of a ½ percent quinine and urea hydrochloride solution in the region of the fissure and dilatation of sphincter ani muscle. After third treatment, she was able to defecate without pain.

Case 4.—Mr. H. gave a history of hemorrhage at each defecation for the past two weeks. He described it as blood squirting from him as milk from a cow when milking. He was very anemic; hemoglobin only 35 percent.

On examination, I found the hemorrhage due to a ruptured hemorrhoid. One injection of 10 Cc. of 4-percent quinine and urea hydrochloride gave immediate relief. No further hemorrhage followed.

Case 5.—I was called to see Mrs. S, who was weeping with rectal pain. On examination, I found a fissure in the posterior commissure of the anal canal. I injected 5 Cc. of a ½ percent solution of quinine and urea, and she had complete relief and told me later the treatment was worth $100 to her.

Case 6.—Mr. H. S. came with a large hemorrhoidal mass, the size of a human fist, which protruded at each defecation and on straining at work. The first three injections caused no pain and he was delighted. The fourth injection was followed by severe pain. He phoned me to meet him at the office at 7 a. m. I feared a slough would be found, but there was none. His sphincter was tightly contracted and I used cocaine solution locally and gently dilated the sphincter. He was relieved and went home and slept peacefully, but called later in the day in similar pain. On a close examination a small ulcer was found which was overshadowed by his piles. This ulcer caused no pain so long as the sphincter was kept relaxed, as the constant protrusion did. As the muscle regained tone, it went into spasm which gave intense pain. I injected 5 Cc. of a ½ percent quinine and urea solution under the ulcer and his pain ceased, never to return.

I prefer to treat these patients in my office, but injection can be made in the home, if proper light can be had.

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A Short History of Asepsis in Surgery

By DAVID F. WOLFE, Rochester, N. Y.

FROM the very earliest days of which we have any record, and for countless ages before, Man has been constantly on the defensive against his greatest enemy—Disease.

Probably the earliest written evidence of this fact is contained in the Egyptian papyri. The Ebers Papyrus, for example, the largest and most famous of the Egyptian medical literature and now in the museum of the University of Leipsig, contains 110 pages of symptoms and treatments of various bodily ailments. The papyrus itself was written about 1550 B.C., but there is every evidence that the material contained in it was copied from other, much older sources.

It was natural that from Egypt should come the first thoughts on human anatomy. The embalming processes of the Egyptians required surgical dissection, and the familiarity with physical construction thus gained enabled the Egyptian surgeons to perform certain operations of a more or less serious character with practically the same *mechanical* technic as is employed in the same operations today.

It must be remembered, of course, that, in spite of Egypt's anatomical knowledge, the conclusions she drew from that knowledge were quite generally erroneous in the light of present-day fact. Nevertheless, it was from Egypt that the impetus to learn more of the body and its functions, through the media of dissection and vivisection, came to Greece, thence to Rome, and finally, with the spread of the Roman Empire, to all of Europe.

The "Medicine Man"

The physician, or his progenitor, has been a very important factor throughout the ages. In very early times, and even today among tribes where the nature and causes of disease are unknown, it is easy to see how some supernatural significance should be attached to anything which deprived a man of the use of his body. Accordingly, the physician, or medicine man, was usually a combination of magician, priest and practitioner. Either because it pleased his vanity, or because he had some slight inkling that the psychology involved might prove helpful both to his patient and to himself, this aboriginal physician deliberately fostered an air of mystery about his person and practice. He himself believed, of course, that disease was a manifestation of evil spirits who had taken possession of the patient's body, so that the incantations and mystic signs he prescribed were in perfectly good faith. Even in Egypt, at the time when purely traumatic lesions, the result of some visible accident, were looked upon merely as a mortal mishap, the belief persisted that a disease which appeared without warning was a visitation of the gods, and the prescriptions were preceded by incantations formally bidding the intruding spirits to be gone. The Ebers Papyrus, mentioned above, contains many of the various forms to be used in addressing the spirits of specific diseases.

It is this belief in a supernatural cause of disease that brought about the peculiarly vile prescriptions which were used. The idea, of course, being to make it so unpleasant for the usurper that he would not care to stay. It is probably the persistence of the same idea in the present day that accounts for the practice, among certain classes, of wearing especially pungent drugs on the person to ward off various common diseases.

To enter upon a detailed history of individual contributions to medicine and surgery is obviously impossible; indeed, such a course would not be compatible with the purpose of this brochure, which is to trace for you some slight outline of the history of Asepsis, and its results. Accordingly, we shall not touch upon the works of such men as Galen, Harvey, Paré, Vesalius, Jenner, and the other great masters. These men and their fellows made contributions, the importance of which can never be even superficially appreciated by the layman. In our present work, we shall discuss only the works of those two men, Pasteur and Lister, who, working in different countries and under different conditions, yet, in the service of Humanity, succeeded in following each other's research and experimentation with such results as we shall presently see.

The Work of Pasteur

Louis Pasteur was born in Dôle, France, on December 27th, 1822. His first scientific study was in the field of crystallography, where his experiments with the right and

left tartaric acids led to the gaining of an immediate fame, but his services to medical and surgical science properly began with his studies on fermentation.

At the time Pasteur began his experiments, there was general acceptance of the doctrine of spontaneous generation. The idea of a bacterial cause was not even thought of, no one as yet having demonstrated even the existence of bacteria as living and independent organisms.

Pasteur, moved by a desire to increase the revenues of his country, undertook, at the request of some of his former professors, a study of the causes of fermentation as applied to the wine and beer industries.

Eventually, the same reasoning which had carried him to success in the studies of fermentation enabled him to develop the use of vaccines and to save additional millions to the world by stamping out anthrax, chicken-cholera, hydrophobia, and indirectly, scores of other scourges.

The ultimate aim of Pasteur's life, as manifested by his own statements, was to free humanity from the grip of the horrible infections, especially those of postoperative and puerperal origin, which were then rampant. While in his own country progress was frequently delayed, the Pasteurian methods were being applied abroad by certain investigators with the greatest success. Chief among these disciples of scientific truth was Lister. Before touching on his work, however, it may be well to make a brief survey of hospital conditions at this time.

About the middle of the nineteenth century, the introduction of anesthesia into general use created a remarkable change in surgical methods. Prior to this time, such operations as were performed were, for two principal reasons, done as rapidly as was compatible with even perfunctory technic. First of all, humanitarianism prompted that the patient be spared as much of the excruciating pain attendant upon these operations as was possible, and, secondly, the danger of severe surgical shock, as a result of the pain, was of much importance.

During this period there was little question of individual merit among surgeons. The man who could most quickly make his incision, remove the cause, and sew up the wound, without resorting to actual brutality, took precedence. That was the only basis upon which comparison was possible.

Anesthesia—and Pus

Anesthesia, however, made a vast change. The element of pain was gone. Patients were able to remain on the table for hours at a time. Profound operations, hitherto unthought of, were possible. Exploratory operations could be performed. In short, it seemed for a time as though the Utopian age of science had arrived.

Nature, though, never gives things blindly. She observes the laws of compensation with most minute attention. In this case all the boons of anesthesia bid fair to be of less than no value at all, for, with the lengthening of operations, the mortality from postoperative infections became absolutely collosal. Healing of a wound by primary intention was something entirely out of the question, and not even dimly looked for by the most sanguine of operators. Indeed, any case of comparatively easy convalescence became the exception to an almost rigid rule. Things reached the point where many of the outstanding medical men of the day were advocating the complete abolition of hospital service. In frantic efforts to correct the appalling situation, new buildings were erected. The strictest kind of housemaid cleanliness was observed. Clean towels and bandages (from the laundry standpoint) were kept in constant readiness, but, after a short time, the conditions in the new buildings became quite as bad as in the old. "Pus seemed to germinate everywhere," said a student at that time, "as if it had been sown by the surgeon," while M. Denonvilliers, a surgeon of the Paris Charite Hospital, who was called—"a virtuoso and a dillettante in the art of operating" said to his pupils, "When an amputation seems necessary, think ten times about it, for too often, when we decide on an operation, we sign the patient's death warrant."

The Work of Lister

Such were the conditions when Lister, afterwards Baron Lister, scion of a long strain of scientific forebears, began his experiments in antisepsis and asepsis, prompted by the researches of Pasteur.

Applying the Pasteurian principles to surgery, Lister reached the conclusion that the suppuration of wounds, far from being a normal means of healing and of fundamental physiologic character, as stated by the proponents of spontaneous generation, was in truth due to the action of outside organisms, exactly as in the case of fer-

mentation. Accordingly, he bent his efforts toward a means of destroying these organisms before they should have an opportunity of entering the wound.

In Lister's wards, at the Edinburgh Hospital, the instruments, sponges, and other articles were first of all purified in a strong solution of carbolic acid, as were also the hands of the surgeon and his assistants. During the whole course of the operation, a spray of carbolic solution created around the wound an antiseptic atmosphere. After the operation, the wound was again washed with the carbolic solution, and dressed with a special gauze, impregnated with a mixture of resin, paraffine and carbolic, thus continuing the antiseptic atmosphere around the wound.

As a result of this method, between 1867 and 1869 thirty-four of his patients out of forty had survived amputation. In spite of this remarkable record, Lister and his methods were violently criticised in his own country.

"People turned into ridicule Lister's minute precautions in the dressing of wounds," writes Dr. August Reaudin, a professor at the Geneva Faculty of Medicine, "and those who lost nearly all their patients by poulticing them had nothing but sarcasms for the man who was so infinitely superior to them."

In 1874, moved by the success he had obtained by the use Pasteur's principles, Lister, in an outburst of admiration and joy, sent him the following letter, which is quoted in its entirety:

Edinburgh, February 13, 1874.

My Dear Sir:—

Allow me to beg your acceptance of a pamphlet, which I send by the same post, containing an account of some investigations into the subject which you have done so much to elucidate, the germ theory of fermentative changes. I flatter myself that you may read with some interest what I have written on the organism which you were first to describe in your "*Memoire Sur La Fermantation Applee Lactique.*"

I do not know whether the records of British "SURGERY" ever meet your eye. If so, you will have seen from time to time notices of the antiseptic system of treatment, which I have been laboring for the last nine years to bring to perfection.

Allow me to take this opportunity to tender to you my most cordial thanks for having, by your brilliant researches, demonstrated to me the truth of the germ theory of putrefaction, and thus furnished me with the principle upon which alone the antiseptic system can be carried out. Should you at any time visit Edinburgh, it would, I believe, give you sincere gratification to see at our hospital how largely mankind is being benefited by your labors.

I need hardly add that it would afford me the highest gratification to show you how greatly surgery is indebted to you.

Forgive the freedom with which a common love of science inspires me, and

Believe me, with profound respect,

Yours very sincerely,

Joseph Lister.

Pasteur Studies Wound Infections

In the meantime, Pasteur, too, was studying the problems of wound suppuration, and on April 30, 1878, during the course of a discussion at the Academie de Medicine, he said in part:

"The water, the sponge, the charpie with which you wash or dress a wound, lay on its surface germs, which, as you see, have an extreme facility for propagating within the tissues, and which would infallibly bring about the death of the patients within a very short time if life in their limbs did not oppose the multiplication of germs. But how often, alas! is that vital resistance powerless! how often do the patient's constitution, his weakness, his moral condition, the unhealthy dressings, oppose but an insufficient barrier to the invasion of the infinetissimally small with which you have covered the injured part? If I had the honor of being a surgeon, convinced as I am of the dangers caused by the germs of microbes scattered on the surface of every object, particularly in the hospitals, not only would I use absolutely clean instruments, but after cleansing my hands with the greatest care, and putting them quickly through a flame, (an easy thing to do with a little practice), I would only make use of charpie, bandages and sponges which had previously been raised to a heat of 130° to 150° C.; I would employ only water which has been heated to a temperature of 110° C. to 120° C. All that is easy in practice; and in that way, I should still have to fear the germs suspended in the atmosphere surrounding the bed of the patient; but observation shows us every day that the number of those germs is almost insignificant compared to that of those which lie scattered on the surface of objects, or in the clearest ordinary water."

And then going on, he gave perhaps the first definition of the sister sciences which were destined to save the lives of literally millions of suffering humanity.

"The defense against microbes afforded by the substances which kill them or arrest their development, such as carbolic acid, sublimate, iodoform, salol, etc., constitutes ANTISEPSIS: the other process, born of the first, the obstacle opposed to the arrival of the microbes and germs by complete disinfection, absolute cleanness of the instruments and hands, of all which is to come into contact with the patient is, in one word, ASEPSIS."

In spite of the fact that these two men, and certain of their far-seeing associates

in various countries were thus aware of the real facts governing infection, changes in method and modifications of technic came so gradually that it is difficult, if not totally impossible, to note exactly when the changes came. We know that Lister himself finally advocated that the use of the carbolic spray be eliminated, as in the light of his own further experiments it was found that its principle reverted to one of wound irrigation, in which guise its destructive action on cellular growth was of rather more harm than benefit.

Asepsis and Sterilization Today

Today the securing of complete asepsis is a part of hospital routine. No surgeon would make a single incision without a definite knowledge that no possible source of infection existed. Nurses are trained in the delicate work of fractional sterilization, that alternate killing and "hatching" process, if we may use such a term as descriptive of the emergence of bacteria from the sporulating state, and in the operation of instrument and dressing sterilizers. Rooms are lined with giant, immaculately-polished autoclaves that literally *cook* even the most resistant spores, as a bit of egg albumin is cooked and hardened in boiling water. Even the most out-of-the-way country practitioner, living in districts that make it almost impossible for him to attend the meetings of his local societies, has in his office an efficient instrument sterilizer, and does not attempt even so much as the simple lancing of a boil without taking the greatest sanitary precautions.

In order to realize that these elaborate precautions are necessary, consider the words of Dr. Frederick-Emil Neef, who, in *American Journal of Surgery*, November, 1911, made the statement:

"It is noteworthy that the spores of the tetanus bacillus are but slightly affected by the *drying* process which is otherwise so inimical to bacterial life. It is possible, for example, that an instrument may carry living tetanus spores to a wound *two years* after its contamination."

It is this sporulating property of bacteria which makes the use of heat and moisture so essential to sterilization. While chemic sterilization, if carried on long enough, may kill spores as well as bacteria *in moto*, the length of time required makes it unsuitable for operating room requirements. In the *Journal of the American Medical Association*, June 4, 1898, Eduard Boeckmann, M.D., makes this statement:

"Themic sterilization may be more complicated and expensive than chemic, as proper apparatus and heat are necessary, but what little we spend in money we gain in time, as this sterilization acts in as many minutes as the chemic does in days. . . . . Boiling water is the first, last and best sterilizing agent in surgery. Steam ranges next to boiling water, while hot air is only effective when its temperature is raised to the neighborhood of 300° F. and continued for hours."

In the light of further research it was shown that even 300° F. was not sufficient to actually kill some of the hardier spores, unless it were maintained over a period so long that it usually resulted in badly scorched dressings and the loss of temper in the instruments. Thus it was that fractional sterilization came into being.

Probably the greatest step forward in asepsis came with the use of steam under pressure as a sterilizing agent. This method combines the vital element of moisture with a far greater degree of heat than can be obtained with boiling water. The result, of course, is more rapid and more certain sterilization without danger to instruments, dressings or utensils, and enables the busy hospital to dispense with fractional sterilization, even in the case of the spore-bearers.

In practice there are two points that should be kept constantly in view. First: Technic that leaves a single bacterium or spore is not true sterilization, because the remarkable recuperative and multiplying powers of bacteria will speedily serve to contaminate the object again. Second: Sterilized objects, if allowed even momentarily in unsterile surroundings, can no longer be considered safe for use, and must be resterilized.

Because operators today understand these two cardinal principles, postoperative infection, which once took such frightful toll of life, is now one of the few pathogenic conditions over which we exercise an almost absolute control.

To read of the self-sacrifices of men like Pasteur and Lister and their fellows in science throughout all history and in all countries is to become filled with a deep sense of man's inability ever to pay, even in a small measure, the debt he owes them.

Altruism is looked upon by most laymen as a purely theoretical quantity. Activated by his own selfish instincts, the average man is unable to conceive of one of his fellow creatures giving up a whole life, without thought of reward, to the good of

(*Concluded on page* 736)

Surgical Seminar

Conducted by GUSTAVUS M. BLECH, M.D.

Preachment No. 4

Office Surgery.—Every surgeon and general practitioner is compelled to perform a number of minor surgical operations or manipulations of a more or less bloody character in his office.

While, as has been pointed out on a previous occasion, this circumstance does not compel any one to transform his consulting room into a regular operating room, provision must be made for aseptic work, and great care must be exercised to prevent infection.

Furthermore, no matter what particular equipment one has selected, constant vigilance will be essential, because the surgeon's office is a combination of clean and septic operating room in one.

There is not a practitioner—except possibly one restricting his work to diagnosis—who has not occasion to treat lues by the hypodermatic or intravenous method. The general practitioner may have to treat a man afflicted with a specific urethritis one minute and make a gynecologic examination the next. This may be followed by an emergency case, involving soiling of a limb in a street accident, necessitating postponement of attendance on a patient suffering from conjunctivitis.

All this complicates the routine which can be observed in modern hospitals, but which is impossible in office practice. Nevertheless, accidents due to faulty technic must be prevented. That they occur no one will question. Accordingly, it will not be amiss to say a few words with regard to the material equipment of the consultation room.

When a practitioner builds his own home or is financially in a position to gratify his desire to secure the best possible office, a small room set aside for aseptic work will be the ideal arrangement. Few, however, can allow themselves such a luxury and the majority of us are glad to have one room large enough to serve as an office and consultation room combined.

Modern business methods demand a desk and some filing arrangement. This takes up some space. A chair or two for patients is a necessity. An examining chair, table or couch is indispensable. Some space must be provided for instruments, drugs and dressings, and some corner—be it ever so small—for analytic work.

We have already pointed out, and do so again, that the equipment need not be expensive. Certainly the display of surgical instruments in steel and glass cabinets may attract a few patients but the majority will be frightened or annoyed by these reminders of human suffering.

What an equipment should be like no one can prescribe, as each practitioner is a law unto himself. But what one can demand is that there be provision for sterilization. An ordinary fish-kettle over a gas or any other flame is really all one needs, and instruments are just as sterile in such a simple appliance as in an electric sterilizer. Dressings are usually obtained in sterile packages, or else they must be sterilized. An autoclave is ideal, but any improvised sterilizer will render satisfactory service.

Hot running water for the surgeon's hands is a desideratum, but many country practitioners who have no other facilities than a pitcher, basin or slop jar do splendid work.

One thing that any practitioner can afford is the possession of many dressing forceps. Their frequent or, more properly speaking, *constant* use will reduce soiling of the surgeon's hands and of the patients' wounds to the minimum.

While washing one's hands after an examination or manipulation should be second nature to every practitioner, an hour's washing will not render the human skin sterile; certainly not after it has been brought in contact with virulently infectious material.

The best prophylactic is avoidance of contact with pus and human secretions, and next to gloves or rubber fingerlings, dressing forceps afford a maximum of protection. The use of these instruments in the removal of bandages and dressings presupposes a certain degree of manipulative dexterity, but this is easily acquired in a short time,

if the tendency to use one's hands be firmly suppressed for a while. When you have learned to do your dressings with forceps, without touching the wound or the gauze with your hands, you are equipped for office work.

The habit of a number of practitioners who keep hypodermatic needles in some antiseptic solution is, to our way of thinking, a pernicious one. A needle used on a syphilitic is to be sterilized in only one of two ways: by boiling in water for five minutes or by a smoke-free flame long enough to bring the needle to a bright red glow. Ordinarily, soaking in alcohol for several hours may render a needle, not soiled with a virulent bacterium or coccus, fairly safe, but this is a bacteriologic problem of an academic character—for practical purposes the solution is: BOIL.

Knowing the principles governing asepsis, one need but carry into his work the same care that he applies in the operating room, to live up to scientific demands. There is seldom a call for asepsis involving the abdomen or thorax in office work, but that is not the sole occasion for care. Any physician injecting a solution into a vein knows that, unless the needle be sterile and the operative area as sterile as the application of tincture of iodine or some similar antiseptic can render it; and unless the process is carried through without a break in the chain of asepsis, he exposes his patient to grave risks. His office must be equipped to guard against such mishaps.

A break in the chain of asepsis is excusable only on the ground of imminent danger of a fatality. No one will hesitate to take one's pen-knife and cut down into the trachea without any regard to the condition of the instrument or of the operative field, if not a second can be lost in an attempt to save life. These incidents in a medical career are, fortunately, very rare.

There is one more point that must be mentioned, and that is the care with reference to technic. When the waiting room is filled with anxiously waiting patients and the office hours are limited or one is compelled to make professional calls of an urgent character, one is apt to hurry more than is good for all concerned.

To illustrate, let us cite an actual experience.

A general practitioner has under his care two or three patients who come to his office three times weekly for intramuscular injections of mercury. The physician has tried to be systematic in his work. He has a number of hypodermic syringes and needles in his sterilizer before his patients arrive and, as each comes in, it takes him but a few seconds to load a syringe, and dip a cotton-tipped applicator into the iodine bottle. By this time, the patient is ready to be injected. The iodine is applied to the patient's skin; the syringe is manipulated to expel all air bubbles from the barrel; and the needle is plunged into the muscular tissue and emptied by slowly pressing on the plunger. The needle is withdrawn, the iodine is applied to the small skin puncture and the patient is instructed to dress. All this requires but a few moments, leaving the physician under discussion ample time to attend to other patients who require more extensive attention.

In a conversation with the writer, this physician boasted that his system was the most time-saving and, therefore, the most valuable of any he had heard about.

When asked whether he had ever had any mishaps, he smiled and shook his head in negation. What could happen? His was a routine which was based on all rules governing aseptic surgery.

A few months later, this physician had to modify his "system" somewhat. A prominent attorney was given his twenty-fifth intramuscular injection in the usual way, as above described, but scarcely had the syringe been withdrawn from the body when the patient began to complain of shortness of breath, pains in the chest and spasmodic coughing. I was called in immediately in consultation, and it required but a moment's observation to diagnose a case of embolism.

Fortunately, the attack subsided after a hypodermic injection of morphine, but the spasmodic cough continued for two or three hours. The physician now simply had to listen to me. The intramuscular injection, it was now demonstrated, was not the simple, harmless procedure he had believed it to be, and the danger of some of the solution entering a vein was a real one. From then on, our colleague held the needle at an angle, and he never again injected the solution until he had made sure, by slightly withdrawing the plunger, that the needle had not entered a vein.

This would not have been written were it not that many, very many, are lulled into a false sense of security in all office work—a circumstance which will sooner or later lead to unpleasant consequences.

The above reminder, if taken to heart, will serve a good purpose.

Discussion and Solution of Surgical Problem No. 8

Recapitulation.—This problem was submitted by our editor, Colonel Lake, was published in the August issue (p. 549) and concerns a young man who has had several attacks of pain in the lower right quadrant of the abdomen for the past two or three years.

The following data are republished:

A fairly typical case of recurrent, catarrhal appendicitis, with operation, immediately following which a sore throat developed.

On the 10th day, when stitches were removed, a stitch-abscess appeared. This developed into a slowly-spreading and somewhat indolent subcutaneous suppuration, which did not clear up after rather small incisions were made.

A painstaking survey of the technic failed to reveal any break in the asepsis. The requirement called for the source of infection and treatment.

Discussion by Dr. E. C. Junger, Soldier, Iowa.

In my opinion, the infection came through the blood stream. The fat, connective tissue and fascia have a rather poor blood supply, and the exudate presented a fine medium for the bacteria, carried to the wound during the throat infection.

That is the reason why no surgeon wants to operate on patients suffering from acute or chronic respiratory disease.

To my mind the vast majority of infections in obstetric practice are traceable to respiratory affections.

The treatment indicated is to open the wound wide; to add skin incisions through the infected area; and to irrigate with hot chlorazene solution, as often as the degree of infection indicates.

Discussion by Dr. H. K. Shumaker, Bellevue, Ohio

I am unable to determine the source of the pus-forming organism which is responsible for the trouble, but the fact that the patient was rather ill-nourished, in all probability, accounts for the spread of the infection.

Treatment in this and similar cases consists of applications of ultraviolet rays and gentian-violet solution.

In my own practice, I had, recently, a patient who had been operated upon for inguinal hernia by an excellent surgeon. Two months after the operation, the wound had not yet closed, in spite of most painstaking antiseptic care and attention. Two weeks' treatment with gentian-violet and three exposures to the ultraviolet rays gave an ideal result.

Discussion by Dr. H. O. Strosnider, St. Francisville, Mo.

The character of the temperature, pulse and white cell count indicates that this young man had a moderate sepsis to start with, and the infection might have come from the throat.

This could have been determined with a fair degree of certainty at the very beginning, if cultures from the throat exudate had been made.

As regards the treatment: If I were to find a patient the second day after an operation with a sore throat and I felt sure that there was no break in the aseptic technic, I would not disturb the dressing.

In such cases, I am in the habit of relying on vaccine therapy combined with nuclein, calcium sulphide and echinacea.

If this treatment fails to bring about the desired result, an effort is made to isolate the offending organism and to produce a vaccine from it.

As regards the treatment of infected sutures, the pus cavity has to be incised and disinfected with tincture of iodine.

Solution by Colonel Geo. B. Lake, Chicago

First, with reference to the source of infection.

A search of the literature showed that in one naval hospital fresh operative wounds had become infected by way of the blood with a hemolytic streptococcus, which had gained entrance through the throat (Keegan, *J.A.M.A.*, May 17, 1919, p. 1434).

Cultures were made from the throat and from the pus from the wound of our patient, and almost pure cultures of a hemolytic streptococcus were isolated. Several patients were found in the ward who harbored the same organism, all inmates having been subjected to cultural tests for the determination of its presence or absence.

There seems to be little doubt that the wound has been infected hematogenously.

As regards the treatment, we adopted the following procedure: The wound was laid open freely, thoroughly cleansed and sub-

jected to the typical Carrell-Dakin treatment. Gradually increasing doses of streptococcus vaccine were administered at the same time.

Progress was rather slow but steady and the wound eventually healed. The patient remained in an anemic and debilitated condition for some months, but regained his full health under hematinic and supportive treatment and care.

Editorial Comment

It seems almost superfluous to add another word to the discussion, but as I have published only three communications, I feel I must ask the other correspondents to forgive me.

I have rearranged my "den" in my home and in the midst of the confusion the preparation of this month's Seminar had to be accomplished under trying external conditions. As a peace offering, I promise still greater efforts in the future, having organized my time and material for that purpose.

Colonel Lake's solution is what almost any experienced surgeon would anticipate, and does not come as a surprise.

Dr. Junger's remarks indicate that he is afraid to operate on patients suffering from acute and chronic respiratory disease, because of the danger of infection. I do not think that is the principal reason, because infections are, fortunately, extremely rare, even in the presence of throat, bronchial or lung disease, but in this class of cases the risk of postoperative pneumonia and pulmonary edema is a real one, and sad reminders of my early boldness have compelled me to master the technic of local analgesia so as to be able to perform virtually all surgical operations without resort to ether or chloroform narcosis.

It is an absolute fact that the value of the ultraviolet rays in postoperative wounds which refuse to heal kindly is really great, but this applies to the milder infections only, as far as my own experience is concerned.

Take, for example, an acute pus appendix, in which drainage is imperative. These patients make a good recovery in most instances; but, after they have left the hospital, the wound at the site of the drainage tube refuses to heal, in spite of silver nitrate or actual cautery or similar methods of wound treatment. Three or four applications with a powerful ultraviolet lamp bring about closure of the wound. I have no such appliance, but we have a number of clinicians here who make extensive use of physiotherapeutic methods, and these gentlemen can tell us a good deal about the aid they have given everyone in the postoperative care of their patients. I prefer eosin solution, to augment the phototherapeutic effect, because it is a strongly fluorescent chemical.

Announcement

This department has a number of interesting case reports which will be published in the near future. Correspondents should not become impatient if I do not reply to letters at once, but surgeons may rest assured that contributions are always welcomed, and will be used or returned with an explanatory note.

Surgical Problem No. 9.
Submitted by Dr. R., Indiana.

A man visited the writer's office, April 17, 1924, and complained of having suffered from a "cold" for about a week, and that soon after he began to feel ill. He experienced pains which radiated from the gastric region to both sides of the chest. At first, he had a little fever, but there was no sensation of fever after that.

The previous history is entirely uninteresting; his bowels are regular; his sleep is normal; his appetite good. The pains have no relation to food intake.

His pulse at the first office visit was 87; temperature 99.4; chest negative. There was some tenderness over the pit of the stomach, but no rigidity and absolutely nothing either in the history or in the physical findings to cause one to think of gall-bladder trouble.

A preliminary diagnosis of grip was made and a prescription given. At 4 p. m., the same day, the physician was called to visit the patient and arrived at five the same afternoon. The patient was found sitting up, leaning forward with elbows resting on his knees and suffering excruciating pains. There was general abdominal tenderness and rigidity of the abdominal muscles. Temperature 98° and pulse 90. Surprisingly, the patient also complained of pains in his penis, but as these were not of a radiating character and as the urine proved free from blood and pus, stone was ruled out. The same evening the patient could not urinate and had to be catheterized.

The next morning the patient was reported better, but when seen during the forenoon his pulse was 102 with a temperature of 99°. Abdomen unchanged. Advice to send the patient to a hospital for operation on a diagnosis of serious upper abdominal trouble was not heeded.

The same afternoon another physician was called in and made a diagnosis of acute appendicitis, with the positive assertion that the appendix had ruptured. While the first physician disputed the diagnosis, the patient was, at any rate, immediately sent to the nearest hospital, where the second physician operated and found evidence of a general peritonitis, involving also the appendix, but without any special pathology. There was some fluid and pus in the abdominal cavity. Drainage was inserted.

The patient was given hot water, by mouth, in 12 hours and tap water in 24 hours. April 20, the patient appeared in good condition and was given water *ad libitum*. The next day he was given a dose of castor oil, on the surgeon's order. That same night, he appeared much worse. His abdomen was excessively tympanitic and he vomited a good deal of the water he drank. Two days later, in spite of a rather hopeful prognosis by the surgeon, the patient died.

The nurse reported that she believed that much of the water the patient drank passed very rapidly through the drain.

No postmortem examination was made. The reporter of the case states that this is all the data he has, but expresses a decided opinion on the true character of the condition.

Required: Diagnosis and criticism of the ante- and postoperative management of the case.

A Case of Eclampsia, by Dr. Houston Neeley, Beeville, Texas.

Obstetrical Problem No. 1, published in the July Seminar, so resembles, in many respects, a case that has come under my observation, that I submit it to the Seminar in the belief that it will prove of some interest.

I was called June 7, 1925, to see a Mexican woman, about 24 years old, the mother of two living children, who had been pregnant about seven months, and who had suffered from five or six eclamptic convulsions.

She was completely unconscious, her pupils were dilated and there was general edema without any increase in temperature, but with pulse of 60. For two days, the patient had not had a bowel movement nor had she voided any urine.

When the first visit was made at eleven in the morning, the condition was unmistakable, the stertorous breathing leaving no doubt as regards the gravity of the situation.

I gave the patient large doses of the tincture of gelsemium, potassium acetate, fluid extract of corn silk and a saturated solution of magnesium sulphate every two hours, and at once unloaded the lower bowel with a warm water enema.

I see the patient several times through the day, but it was not until nine in the evening that any improvement in the character of the respiration could be noticed. The pulse, too, at that time, improved.

I saw the patient the following morning at seven thirty, having been called early because of labor pains. Delivery occurred at nine a. m. The child was dead at birth. Consciousness returned in the afternoon and from then on the recovery was gradual but uninterrupted.

Clinical Notes and Practical Suggestions

The Effect of Ultraviolet Rays*

SCIENTISTS now generally recognize that wave-like undulations of the ether, apparently exactly alike except as to the amplitude of the vibrations, produce a large number of very varied effects.

Beginning at one end with the waves by which radio and wireless messages are transmitted, which are several city blocks long, we pass through the fields of the sinusoidal current, the d'Arsonval current, the infra-red rays, and arrive at the visible solar spectrum. This visible area is very short and, as the vibrations grow smaller, they become invisible again and manifest as air- and water-cooled ultraviolet radiations, x-rays, etc., and come presently to the gamma rays of radium which have an amplitude of a few score of Angstrom units —an Angstrom unit being one ten-millionth of a millimeter.

How infinitesimally small a part of this great sweep of energy vibration we are able to *see* is shown by the statement that, if the visible portion were represented by a spectrum twelve inches wide, the invisible portion would stretch for 260,000,000 miles.

In proportion as the wave-lengths of energy vibrations become shorter, their power of penetration become less. The huge radio waves go through walls of steel and stone, or even through several hundred feet of earth; while the water-cooled ultraviolet rays will penetrate the human skin for only a few microns. Curiously enough, when we reach the still shorter waves of x-rays, the penetration increases again. In spite of the slight penetration of the ultraviolet rays, they, none the less, exert a profound influence upon the metabolism of calcium and phosphorous.

Vibrations having an amplitude of 8000 Angstrom units become visible as red light. As they grow shorter, the spectrum passes in review. When they are as short as 4000 Angstrom units, they are once more invisible.

Experiments have shown that not all of that region of vibrations which we know as ultraviolet will exercise curative effects, but only those energy waves which are between 2600 and 3022 Angstrom units in length.

It is now well recognized that ultraviolet irradiations can cure rickets and parathyroid tetany (many experiments on chickens and rats have shown the effect on rickets; and Collip's experiments on parathyroidectomized dogs have shown the effect on tetany), and can exercise a very favorable influence upon chronic ulcers, asthma and all forms of anaphylaxis, mucous colitis, tuberculosis and a number of other morbid conditions which are characterized by a deficiency in the free or *available* blood calcium. Not that these diseases are *caused* by the calcium deficiency but that the calcium content is an *index* of the pathological changes.

How then do (or may) these energy radiations work to produce these results?

It is found that when cells are examined, under the microscope by the invisible, ultraviolet rays, the nuclei appear as if stained, while the cytoplasm is clear. This shows that these rays exercise a selective influence upon nuclear or chromaffin substance, and that they may furnish an adequate stimulus for this type of structure wherever found. In this connection, it is to be remembered that, in addition to all cell nuclei, the sympathetic nervous system and the adrenal medulla are composed almost entirely of this material.

Some substances merely fluoresce under the ultraviolet rays, while others become phosphorescent; i.e., they become *charged* with this energy. Among these latter are cholesterol and lecithin, which are present in varying amounts in many parts of the body. Is it not possible that these charged substances may *carry* the energy to distant

*Abstract of a lecture delivered before a group of physicians and students, September 4, 1925, by A. J. Pacini, of Chicago.

parts of the body, somewhat as the hemoglobin of the red cells carries oxygen?

The work of Gaskell and of Peterson, of the University of Illinois, has shown that stimulation of the sympathetic nervous system causes the body cells to contract, at the same time taking in calcium and expelling potassium; while stimulation of the parasympathetic causes the cells to expand, taking in potassium and expelling calcium.

The bronchi, the heart, all of the abdominal viscera (especially the adrenal medulla) and the genitalia are supplied with fibers from the sympathetic nervous system through the stellate, cœliac and superior and inferior mesenteric ganglia. In asthma, gastric ulcer, mucous colitis and many other conditions, a deficiency of calcium has been shown to exist.

The sympathetic system supplies fibers to the skin, and it seems reasonable to suppose that the effect of the ultraviolet rays affects these nerves and through them, directly, the prevertebral chain of ganglia and, indirectly, the great abdominal ganglia mentioned and the organs they supply. The very *lack of penetration* of these rays makes their effect on the sympathetic a specific one.

The fact that a bronzing or "tanning" of the skin follows ultraviolet irradiation shows that the adrenals have been stimulated, for this is the "signature" of these glands.

The effects upon rickets and other bone-dystrophies has led to experiments as to the effect of these rays upon the healing of fractures, and these have shown very interesting and favorable results.

The field for experiment and research in the effects and uses of these rays is broadening every day and opening up larger and larger possibilities for interest and usefulness in the cure and amelioration of disease, particularly when we consider the profound effects which appear to be thus produced upon the various endocrine organs, and the surprisingly large and important part which these organs are being shown to play in all the varied chemistry of body metabolism and even in variations of character and disposition.

G. B. L.

APPLAUSE VS. PRAISE!

What would this world be without applause? It is the Viva to the bull fighter, the Attaboy of the ball player, the Fan Letter of the movie artist.

But there is one chap who wants applause, not because he is a praise-hound seeking the adulation of others, but because it is his one and only method of knowing whether what he is doing is "getting across" effectively.

Did you ever stop to think how isolated a writer is? How effectively concealed he is at one end of a one-way wire which carries his thoughts outward and away, but which brings back no inkling as to how his audience liked what he wrote? The trouble is that the writer is hidden behind anonymity; you can see the actor and applaud him, directly he has finished, if he does well; you *feel* the personality of the singer over the radio and send a postal of thanks; Babe Ruth gets his ovation when he comes to bat.

But the writer gets little applause. He may start a movement that startles the world into new channels, but it is seldom that he can find out how effective his work is. People are so accustomed to reading type (like this for example!) that they forget that each word is thought out, written, rewritten and proofread by a human being like themselves, a man who wants their applause, *not as praise*, but as a guide to better work, more interesting work in the future.—From *Medical Pocket Quarterly.*

FEEDING OF CHILDREN

One of the most common mistakes the mother makes is brought about by her preconceived notions that every child requires the same amount of food and that every child must necessarily eat every meal. With this idea in mind she becomes fretful and emotionally upset if the child fails to meet her standards. Notwithstanding the fact that the state of nutrition is one of the most important indicators of the child's well-being, it does not hold true that all children require the same amount of food, that they must necessarily be of the same height or weight at a certain age, or that any particular harm will follow if they miss a meal or two. It is frequently this undue anxiety on the part of the parent that tends to make the meal hour an event rather than an incident in the daily life of the child.

This is seen clearly in the case of a bright little girl of six. Her mother died of tuberculosis, and the father is haunted by a fear of the child's having contracted the disease.

His one desire is to see her fat and rosy. Three large meals a day are forced upon this child by an overwrought father who in his anxiety creates such a tense atmosphere in the home that Sally loses all appetite or bolts her food in fear of the wrath to come; or, in a different mood, waits to be coaxed and bribed to swallow a single mouthful. Instead of being a simple routine, mealtime offers an opportunity which the child sees and grasps for staging a little drama in which she is the principal figure, the object of solicitude and concern. The meal itself has lost importance and all depends upon the child's wishes.

Who does not like to feel his own importance and power? Small Tommy, by eating or not eating, can pretty well control his parents and make them bow to his will. Mother herself may unconsciously defeat her own desires. She may start the meal by reminding Tommy that he did not eat his breakfast. There may follow a period of teasing and coaxing or threatening and bribing, all of which, if Tommy has a will of his own, may make him determined not to give way, or he may compromise and eat if mother will sit down to feed him, even though he can well perform this task for himself. Then, the meal over, Tommy hears the whole situation reviewed to a neighbor who drops in and to whom mother turns for sympathy. Most people like to be "unusual" or "different", and according to mother, Tommy is decidedly so. Is there any wonder he should strive to maintain the role?

D. A. THOM,

Boston, Mass.

NEW COMMANDMENTS FOR THE DOCTOR

I. Thou shalt have no favorites among newspaper correspondents in order to see thy name in print.

II. Thou shalt not bow down to graft nor to the image of gold.

III. Thou shalt hold they tongue when sued for malpractice; remembering that silence is golden and that thy adversary is after thy gold and will get it if thou art not discreet.

IV. Remember the Sabbath day and keep it holy; six days shalt thou labor and the seventh also, if thou hast an opportunity to do good or the prospect of a good fee.

V. Honor the fathers of thy profession, that thy days may be long upon the land and thy usefulness lengthened, through the example and achievements of thy fathers.

VI. Thou shalt not sanction adultery nor produce an abortion.

VII. Thou shalt not steal thy brother's patients nor forgive him when he steals thine.

VIII. Thou shalt not kill thy brother's opportunity for earning a living nor murder his chance of usefulness. He, probably, is thy superior.

IX. Thou shalt not bear false witness against they neighbor, nor speak evil of his good name. His reputation may be better than thine.

X. Thou shalt not covet the specialist's fee, nor dispute even a division. Let him have all the money; he may think he earned it. Thou must be content with glory.

DR. W. W. BROWN,

Shenandoah Junction, W. Va.

(*Bull. Chicago Med. Soc.*)

OBSTETRICS AT SEA. HERNIA OF THE BRAIN.

The work of a ship's surgeon is very interesting and varied. I do an immense amount of surgical work at times, both minor and major operations, and many accident cases are happening more or less constantly; one has often to operate quickly and form decisions on the spur of the moment.

I have had about 25 cases of labor, using instruments in three-fourths of the cases, not always from necessity, but in order to facilitate quick delivery. One of these cases was of so unusual a nature that I almost hesitate to record it, lest my veracity be questioned, but it was so interesting that I will venture to tell the story.

We were caught, early in the fall, in the North Sea, in one of the worst storms in my recollection—a gale blowing at 125 miles an hour, with heavy seas, the head-on sea being so great that it was necessary to slow down. We lay, at times, in the trough of the sea with immense waves rolling over us, and nothing but the smokestack sticking out.

I was in my cabin hoping all would go well, and thanking God that I had no call just then, having been thrown clear across my stateroom, my body breaking the bar which guarded my berth, and I was endeavoring to anchor, in some way, my desk chair which was revolving at great speed across the room. In the midst of this a

hurried knock came and I was asked to call at once in a cabin far in the rear. In the dim light I beheld a frail, delicate lady, age 29, a primipara in labor.

After an examination under great difficulties, I found that her bag of waters had ruptured prematurely, necessitating a dry birth. This occurred at 7 in the evening and, although her heart was irregular and weak and she rapidly grew weaker, I gave her the benefit of three hours, when from her critical state it became necessary to intervene with the hope of removing the child as soon as possible. Labor pains were very slight—practically nil—and weakening. I waited until the head was approximately half way through the external os, when all contractions seemed to have disappeared. The pelvis was contracted and very small, and when I had applied the forceps with reasonable force it became evident that it would be impossible to gain any end unless greater force should be used.

It was necessary to proceed regardless of the condition of the child, as the mother was weakening fast, and I decided to take the child out piece-meal if necessary. I, therefore, used all my power in extraction along the classical lines, downward and backward in the axis of the superior strait. The child was finally brought out with no uterine contraction that I could ascertain at the time. Hemorrhage was free. With the lurching of the steamer and no help, I had my hands full. I was unable to give the child any attention, just then, on account of the mother's condition.

I immediately gave a hypodermic of morphine, gr. ¼, and ergotine 5 min., and a dram of ergot by mouth. Grasping the fundus of the uterus, it finally slowly contracted, the hemorrhage diminishing. I packed the vagina well with gauze and now turned to wrap up the little dead child. To my amazement, I discovered a faint movement around the mouth suggestive of life. At once, I seized the little feet, and, head downward, slapped it vigorously on back three times, with the hoped-for result.

Now comes the part that I had not noticed until then, although the eyes were bulging out of their sockets, which in my hasty glance, at its birth, gave me the impression that the child was dead. It seems that the extreme force of extraction with the instruments, and the pressure of the narrow pelvis had so elongated the head that, without the least exaggeration, I should say about half of the brain lay under the scalp, having been forced through the fontanelles. The sides of the head were flat and the whole head elongated. I took it in my hand, never expecting the child to live, and by sheer force and rather rough manipulation, I must admit, I succeeded in replacing the brain contents in the cranial cavity, molding the head into shape as best I could by pressure with my hands from all sides. I placed a bandage around the head, especially over the fontanelles, and every day I molded it as it grew steadily firmer from day to day. The outcome was a perfect result; the baby was a beautiful little boy, and the mother fully recovered.

This shows what wonderful vitality and reconstructive powers certain living tissues possess, and, as another example, I well remember a rather funny episode occurring in my early life.

While visiting my aunt in Maryland, great excitement ensued while we were having dinner, when one of the children of the big negro cook rushed in from the kitchen and shouted, "Ma! come quick, Dave done driv a nail in the baby's head." Upon immediate investigation, we found Dave sitting before the old quarters door with the baby between his knees, and a big tenpenny nail being driven into the head for half its length, through the anterior fontanelle. The baby didn't seem to mind it much, although crying some. The nail was immediately withdrawn, and this amounted to the treatment received, no application of any sort being made. The baby continued in the usual tenor of its ways, and grew up perfectly healthy afterwards.

I am very busy, as we sail again Monday night. So, I am sending this letter just as it is.

GILBERT T. SMITH,
Chief Surgeon, S.S. Reliance,
39 Broadway, New York, N. Y.

HEART ATTACKS

I have a case of heart trouble. I am not sure of the diagnosis, but have called it chronic fatty degeneration of the heart muscle. The patient is fifty years old and has katabolized considerable alcohol in his time, during about twenty-five years.

The books describe chronic myocarditis and chronic fatty degeneration, between which I can not make differential diagnosis with certainty.

I did not see his first attack, but was told he was maniacal, and he says he does not know what he did at that time.

He can not stand much exertion, as it makes him short of breath and he becomes pale, but remains conscious.

When he has his attacks, a change of position relieves him. At one time he turned a little more to his right side and experienced relief. At another time, after he sat up on the edge of the bed (which I was afraid to let him do), the relief surprised us. He says now that nitroglycerine pills relieve him in much the same way. My treatment is mostly rest. Digitalis does not seem to help, and I notice it is not recommended (or only in small doses) in such cases.

His heart is also irregular at all times, but not so much as was at first, about eight months ago.

There is no swelling of the feet. He has not been subject to bronchitis before nor since his trouble began until lately when he had an attack (perhaps of grippal origin) and coughing brought on a heart attack.

I would like to know the explanation of the sudden relief obtained by change of position or giving nitroglycerine and to receive other suggestions. I think iodides do most good in painful hearts used "between acts", but it has been of doubtful help in this case.

C. B. KENTON,

Artesian, S. D.

[The evidence in this case is too incomplete to warrant a diagnosis. We are writing to Dr. Kenton to send us further details (presence or absence of valvular lesions; blood pressure readings; uranalysis; presence of foci of infection, etc.), but, on the supposition that if there had been any organic lesion the doctor would have mentioned it, we are suggesting that he try thorough elimination and cactoid.

We would be glad to have all readers comment on this case, and we will publish such information as we receive from Dr. Kenton.—ED.]

CARBON MONOXIDE

Carbon monoxide may be formed in many places, and inhalation of this treacherous gas is a frequent and widely distributed cause of poisoning that ranges in severity from headache and lassitude to unconsciousness and death.

People are continually being affected by carbon monoxide in homes and garages, around gas and gasoline engines and blast furnaces, in fighting fires, after blasting in mines and quarries, and after mine fires and explosions; in fact, wherever there is possibility of exposure to the products of combustion of carbonaceous fuels or products. As cases of this type of poisoning often occur from the most unsuspected sources, and as the indicating symptoms of carbon monoxide poisoning, such as headache, nausea, dizziness, collapse, and unconsciousness are often attributed to other causes, it is essential to have suitable means whereby the true condition can be ascertained. Quick, accurate determination is not only of value for making diagnoses and giving proper treatment, but for investigating the causes and conditions under which the poisoning occurred, as well as providing means for examining doubtful atmospheres to prevent and guard against the recurrence of poisoning.

The only infallible diagnosis of carbon monoxide poisoning is made by examination of the blood for carbon monoxide hemoglobin, the compound which the gas forms with the coloring matter of the blood. Through the formation of this compound the hemoglobin becomes ineffective as an oxygen carrier. A mere qualitative examination for this compound will indicate whether or not carbon monoxide is present, but in view of the obvious desirability of knowing whether or not carbon monoxide is the primary cause of the condition of the patient, it is necessary to make a quantitative determination of the carbon monoxide hemoglobin present.

Methods have previously been devised for the quantitative analysis of carbon monoxide when present in blood and in air in quantities large enough to menace health and safety. Some of them are suitable as to accuracy, yet all have some objectionable features, in that they require either elaborate and expensive apparatus, or special technique and training on the part of the analyst, or are too delicate or too cumbersome for field use.

The Bureau of Mines, in its investigation of many cases of industrial and domestic poisoning from carbon monoxide, found it necessary to develop a method and apparatus that could be immediately taken to the scene of a poisoning, and which would give accurate results as to the carbon monoxide in the blood and in the air. The pyrotannic acid method has been used frequently during the past two years in the investigation of

fatal and nonfatal cases of poisoning from gas stoves, automobile exhaust gases, and blast-furnace gas; also in the analysis of air in vehicular tunnels and in mines after blasting and during rescue operations after a mine explosion. It has been used in the laboratory for experimental investigation of carbon monoxide poisoning of men and animals, and has also been used with equal success by other investigators and by corporations, both in America and in foreign countries. In all of this work the method has been found very reliable and accurate, and admirably fulfills requirements for the examination of blood and air. Its simplicity and ease of operation make it well suited to the needs of hospitals, industrial surgeons, safety engineers, coroners, departments of public safety, boards of health, and other allied organizations.

Details of the pyrotannic acid method for the quantitative determination of carbon monoxide in blood and air are given in Technical Paper 373, copies of which may be obtained from the Bureau of Mines, Department of Commerce, Washington, D.C.

R. R. SAYERS,
Chief Surgeon, Bureau of Mines.

METAPHEN IN HAY-FEVER AND FURUNCULOSIS OF EXTERNAL AUDITORY CANAL

I noticed, on page 150 of the March, 1925, number of CLINICAL MEDICINE, the suggestion that, in treating colds, Metaphen be applied in the nostrils with a medicine dropper. This seems to me hardly a practical way to use the drug, as the solution does not remain in contact with the mucous membrane long enough to do any material good.

I have found that, by saturating a piece of cotton about as long and as broad (but not as thick) as the index finger with a 1-5000 solution of Metaphen and introducing it into the nostril by doubling the end of it over a blunt applicator or the blunt end of a crochet needle or something of that kind, pushing it up into the nose the full length of the cotton and allowing it to remain for 15 or 20 minutes, in cases of colds and hay-fever, it gives marked relief.

In hay-fever, particularly, I have been securing some excellent results.

I consider this method far superior to using a dropper to instill the solution into the nose.

I have also obtained very satisfactory results by the use of Metaphen in cases of furunculosis of the external auditory canal, in which it seems to be more efficacious than any other drug.

My method of treating these cases is as follows: I pack the canal, lightly, with cotton saturated with 1-500 (full strength) Metaphen solution and allow it to remain for about half an hour. This is repeated two or three times a day and between the treatments I direct the patient to drop a 1-2500 Metaphen solution into the ear every two hours.

In a limited number of cases (about a dozen) this treatment has given really wonderful results.

I should be glad if some of my confreres would try this treatment and let me know the results.

D. H. TROWBRIDGE,
Fresno, California.

[This sounds to us like a very practical and valuable suggestion, as it combines the use of a safe and powerful antiseptic with the prolonged action obtained by the Dowling nasal tamponade. It might, in fact, be interesting if those who have learned the Dowling technic would try replacing the colloidal silver preparations with Metaphen, in certain cases.

External auditory furunculosis is a miserable condition to treat, in most instances, and if Doctor Trowbridge has found a remedy for it we should all be grateful.

If those who give these methods a trial will send reports to us we will be glad to publish them for the benefit of all of our readers.—ED.]

THE NEGLECTED EYESIGHT OF SCHOOL CHILDREN

The schools of our country, taken as a whole, are neglecting a plain duty with regard to the eyesight of school children. Over and over again we hear of astonishing disclosures gathered from the reports of belated tests indicating that large numbers of children are struggling along with their school work in a vain endeavor to overcome, unaided, various degrees of defective vision, the very existence of which had heretofore been unknown. Is it fair to expect a child with one-half of standard vision and no glasses to keep up with his classmates who are free to meet their school problems without the very material draw-back of inability to see? This, without taking into consideration the added inconvenience of the often

attendant headaches, nerve-exhaustion or general ill health.

That school life is in all probability a contributing cause to poor vision is brought out by the fact that the number of children with marked defects of vision at sixteen years of age was four times as great as the number at six years of age.

It rests with the schools to endeavor to eliminate this state of affairs. Regular periodic eye examinations at least once each year would detect the manifest defects. The efforts of school authorities should then be directed toward impressing the parents with the seriousness of neglected visual defects, so that all children requiring glasses would be fitted with corrective lenses.

It must also be remembered that glasses alone will not bring about the desired results. As many contributing *causes* to eyestrain as possible should be weeded out, thereby permitting the minimum amount of faulty vision to exist. Care should be taken to provide the best possible schoolroom lighting, both natural and artificial. Light from the windows should be controlled by shades, and desks with a dull finish used to avoid unnecessary glare. Blackboards should be placed so that they receive a good light—never between nor under windows. Among the primary precautions is the use of proper book type. All school books should have large, clear type on dull paper.

If these measures are taken to eliminate eyestrain, together with regular periodic eye examinations, a big step will have been taken toward the conservation of the eyesight of our future citizens.

GUY A. HENRY,
General-Director, Eyesight Conservation Council.

SMALLPOX AND VACCINATION

People who are planning a trip abroad often debate the wisdom of vaccination or revaccination before leaving these sheltered and sanitary shores. Surprising, however, is the news of smallpox brought forward in a recent bulletin of the League of Nations. In 1923 the United States stood third in the number of cases of smallpox reported by some fifty-odd countries of Europe, Asia, Africa and other parts of the world. It was surpassed only by India and Russia. Next higher after its 29,968 cases come England and Wales with a total of 2,485. The whole group of countries of northern Europe—Norway, Sweden, Denmark (these three with none at all), the Netherlands, Finland, Germany, Esthonia, Latvia, Lithuania and Belgium—reported only 131 cases of smallpox in an aggregate population equal to that of the United States.

Within our own territory the differences are equally striking. Massachusetts reported a case rate of 0.1 per 100,000 of population; Montana, of 110.0. Between these extremes the honors, in general, lay with the New England and north Atlantic states, the black marks with the whole northern tier of states (except Idaho) from Michigan westward and down the Pacific coast through California. The smallpox rate of California is about fourteen times that of Japan!

Obviously if smallpox occurs a thousand times more frequently in Montana than in Massachusetts, in relation to population, the contrast is more than accidental. If countries which have been swept by war and famine and disease can avoid this scourge, surely it seems unnecessary that thousands should be killed or disfigured by it in American states which are noted for their prosperity, their healthful climates, and their excellent record for health administration in other particulars. The case rate of smallpox in any community is a direct index of the degree to which universal vaccination is preached and practised. The year just ended will undoubtedly see an even higher record than that preceding—during its first six months, for which alone statistics are now available, almost as many cases of smallpox were reported as in all of 1923. With a sure means of prevention at hand, and the experience of the world to compare with our own, every case of smallpox in this country means a victory of superstition, ignorance or carelessness.

Reprinted from *The Survey*, for January 15, 1925.

TOWARDS THE SOLUTION OF THE CANCER PROBLEM

The publication in *The Lancet* for July 18, 1925, of the paper by Dr. W. E. Gye on "The Etiology of Malignant New Growths" marks an event in the history of medicine. For these observations may, we believe, represent a solution of the central problem of cancer. His carefully controlled experimental evidence leads to certain fundamental conclusions which may be briefly summarized as follows:

1.—All malignant new growths contain an ultramicroscopic virus—or group of viruses—which can be cultivated. This applies to the carcinomata and sarcomata of fowl, mice, rats, dogs and man. The virus resides probably within the cells of the neoplasms.

2.—The virus alone, washed free from all adherent material, does not produce a tumor when injected, and does not even produce a visible lesion.

3.—But when injected together with virus-free extracts of tumors the virus produces a malignant new growth. The extracts contain, therefore, a substance called by Dr. Gye the "specific factor", which enables the virus to attack the cells of the injected animal so as to transform them into cancer cells.

4.—There is no species specificity so far as the virus is concerned, for tumors can be obtained in one species of animals with the virus obtained from the tumor of another species.

5.—The "specific factor" shows a very strict specificity of species. Thus in order to produce a malignant new growth in a mouse it is necessary to use the specific factor from a mouse tumor, while the specific factor of a chicken tumor is ineffective.

6.—There is probably also a strict specificity of tissue for the specific factor. So far, only sarcomata have been obtained, and these only with a mixture of virus and the specific factor from sarcomata, not from carcinomata.

The existence of a virus is not merely postulated from the effects of a culture supposed to contain it, as has hitherto been the case. The paper by Mr. J. E. Barnard on "The Microscopical Examination of Filterable Viruses" follows Dr. Gye's communication, and in this he has applied the optical methods elaborated by him for the study of the organisms of bovine pleuropneumonia, the largest of the known filter-passing viruses, to the study of the cancer viruses cultured by Dr. Gye, and shows that he has succeeded in rendering the cancer virus visible and even in photographing it. This is in itself a great achievement. The results of Mr. Barnard's observation so closely correspond with the experimental results obtained by Dr. Gye that the existence of a living cancer virus would appear to be established. The reasons for this broad opinion follow.

In order to make clearer the relationship existing between the virus and the specific factor, definite examples may be given. We will call the virus obtained from a mouse tumor "mouse virus", from a human tumor "human virus" and so on. Similarly we will call the "specific substance" obtained from a mouse carcinoma "mouse carcinoma specific", from a human carcinoma "human carcinoma specific", from a fowl sarcoma "fowl sarcoma specific", and so on. Then the following relationships have been established experimentally after injection:

(a) Any virus alone, from any neoplasm, into any animal: no effect.

(b) Any specific, from any neoplasm, into any animal: no effect.

(c) Mouse carcinoma virus+fowl sarcoma specific: (1) Injected into mice—no effect; (2) injected into fowls—sarcoma.

(d) Human carcinoma virus+fowl sarcoma specific injected: Into mice—nothing; into fowls—sarcoma.

It follows, therefore, that the type of malignant new growth that is produced depends not upon the virus but upon the specific substance. There are, therefore, two factors concerned in the etiology of cancer: (1) A living virus—the extrinsic factor; and (2) a chemical substance produced by the cells—the intrinsic factor.

Ribbert, from a study of early carcinomata showed that cancer in its inception was a local disease. Butlin, applying this conclusion to surgical treatment, emphasized the importance of operative removal at the very earliest stage of cancer and demonstrated in this way that cancer, if attacked sufficiently early, was a curable disease.

In 1902, the Imperial Cancer Research Fund had come into existence. The late Dr. E. F. Bashford, who had been placed in charge of the work of the Fund and who in his preliminary scheme of investigation had emphasized the importance of placing cancer research on an experimental basis, recognized the value of Jensen's work and devoted all the resources of the new institution to make the study of cancer one of experimental and comparative pathology. Together with Dr. J. A. Murray, he showed that the phenomenon of cancer was common to the whole vertebrate kingdom. By studying the pathology of Jensen's tumor and other tumors in mice, these two workers showed that these tumors corresponded in every respect to cancer in man. They confirmed Jensen's conclusion that in the process of transplantation the transplanted tumor grew from the cells of the minute

piece of tumor that had been introduced by the needle and not by a transformation of the cells of the new host, which only provided the stroma necessary to nourish the cancer cells. This meant that the experimental transmission of a tumor from one animal to another was not a process of infection but one of true transplantation.

Another important conclusion which followed from these observations was that when a cancer arises in an organism it arises there *de novo* as a result of a change in the cells of that animal and not by the introduction of a cell already cancerous from another animal; each case of cancer was, so to speak, an individual disease. Results such as these could not be accounted for readily on the basis of a germ theory pure and simple. We should have to assume a highly specific virus not only for each species of animal but even for each individual case of cancer.

Then a really extraordinary observation was made in 1911 by Dr. Peyton Rous, of the Rockefeller Institute. In a fowl he found a sarcoma which could be transmitted to other chickens, not merely by the introduction of the living tumor cells, but also by an extract which had been rendered cell-free by filtration through a Berkefeld filter. The same successful result could be obtained with the dead tumor material which had been dried and kept for some time.

Dr. Gye's work has solved this dilemma in a manner which is as unexpected as it is convincing. He shows that there is both an extrinsic and an intrinsic factor concerned in the etiology of cancer. The extrinsic factor is a virus common to all neoplasms. By itself it is incapable of producing a neoplasm. To do that it requires the intrinsic factor—a substance produced by the cells which enables the virus to attack the cells. The virus can be cultivated. The intrinsic factor, which so far has been demonstrated only in different tumors, is presumably produced by the cells in the course of chronic irritation. The intrinsic factor varies from tissue to tissue and from tumor to tumor.

The work of Dr. Gye is the outcome of an investigation on ultramicroscopic viruses instituted by the Medical Research Council. A group of men was appointed to work in different special directions, a member of which, Dr. P. P. Laidlaw, gave invaluable help towards finding the direction in which new researches might most profitably proceed.

The Medical Research Council is to be congratulated on having secured the services of Dr. Gye and Mr. Barnard, whose successful work has opened up a new chapter in the investigation of disease. We have stated at the outset that we hold Dr. Gye's work to be a solution of the central problem of cancer. But it is more than that. Dr. Gye has also evolved a technic for cultivating ultramicroscopic viruses and a method of testing for their presence. The observation that a virus by itself is nonpathogenic and requires an accessory substance to produce a specific disease may prove to be of the greatest importance in the further study of the diseases due to these viruses. As Dr. Gye points out, the fact that an organism can be nonpathogenic by itself and manifests its specific pathogenicity only in the presence of some accessory factor is not peculiar to the virus of cancer.

A few years ago, Dr. Cramer and Dr. Gye showed that such a phenomenon plays a part in many well-known bacterial infections. Thus the bacteria of gas gangrene by themselves are nonpathogenic. But, when certain simple chemical substances are also injected, such as calcium chloride or colloidal silicic acid, a slight but specific lesion is produced in the tissues, and then the specific infection is elicited and kills the animal. They called this phenomenon "defence rupture" or "kataphylaxis", and pointed out that it applied to other bacterial infections. For instance, it holds good for tetanus, and even the course of streptococcal infections may be profoundly altered by the presence of such kataphylactic substances. Gye and Kettle found this phenomenon to apply also to tuberculous infections. The phenomenon is obviously of considerable importance in determining both the onset and what is vaguely called the virulence of bacterial infections, and it is curious that the importance of these observations was not generally recognized by bacteriologists.

But a few months ago Dr. Coley—the New York surgeon—referred to these observations of Cramer and Gye in a symposium on cancer, in which he presented the evidence in favor of the parasitic theory of the disease. Coley suggested that the cancer parasite postulated by him required kataphylaxis to attack the cells so as to produce the cancer lesion—probably the only correct guess that has been made in the voluminous literature of cancer theories.

All this work has cleared the way for a rapid advance in the investigation of

cancer along entirely new but clearly defined lines. A host of new questions has arisen, and we have no doubt that by answering them the attack on the cancer problem, which has hitherto baffled medical science, will be brought to a successful conclusion. But there is a far wider outlook than this. The new technical methods now made available will be applicable to research along a whole enormous front. Diseases like measles, smallpox and encephalitis, foot-and-mouth disease and dogs' distemper, may yield their secrets to workers armed with these new weapons.

Abstract Reprint from *The Lancet*, London, July 18, 1925.

PELLAGRA TREATMENT

I treat pellagra with sulphide of calcium, giving it, at first, to saturation and then decreasing the dosage, and giving, at the same time, hydrochloric acid, dilute, in full doses before each meal, with pepsin, or better, in some cases, phosphoric acid, dilute, 20 to 30 drops before meals.

If the stomach and bowels are very tender, then give large doses of bismuth subnitrate an hour before meals.

For the cutaneous erythemas, ichthyol ointment seems best. There are many good salves to relieve the skin eruption, but every one should contain sulphur, 5 to 10 percent. We think the itching and burning of all erythemas are the most difficult of all the skin diseases to relieve; and ichthyol does this most satisfactorily.

The arsphenamines, if used, must be given in heavy doses and few get well and stay well, but in most cases the pellagra returns. Sulphide of calcium and aromatic sulphuric acid with ichthyol or sulphur salves seem to relieve the patient promptly.

The mountain people are taking a home-made remedy with apparent benefit. I do not know their exact formula, but they make it from hydrastis canadensis root, witch hazel bark, Epsom salts, plenty of sulphur and sorghum molasses and take it before each meal. Some give ichthyol internally but, in my opinion, nothing but the sulphur in it is of any value. It seems to me that sulphur "internally, externally and eternally" is the only remedy.

The object of writing this article is to ask you if you have any suggestions for anything better. If you have let me have it.

I. N. Moyers,

Speedwell, Tenn.

[The etiology of pellagra is still a battle-ground for discussion between the advocates of a specific microorganism as the causative factor and those who believe it to be a deficiency disease, like scurvy and beri-beri.

There is, no doubt, merit in Dr. Moyers' suggestions, but, in the present status of affairs, it would seem wise to give all these patients a diet high in vitamine-carrying substances, especially considerable quantities of fresh, lean beef and fresh milk (Goldberger and Tanner) which will not interfere with any other treatment used. Dry brewer's yeast has been especially recommended by Dr. Joseph Goldberger, of the Public Health Service (*U.S.P.H.S. Reports*, January 9 and May 8, 1925).

Shoemaker, in the *N. Y. Med. Jour.*, for August 2, 1913, stated that any measure which would increase the leucocyte count would be of value. If he was right, it would seem that the injection of foreign proteins, such as lactigen, ought to result in benefit to the patient.

Specific treatment by means of the arsphenamines and sodium arsanilate has been highly recommended.

Perdue, in the *Medical Council*, stated, some years ago, that he believed the disease to be due to a lack of alkalinity of the body fluids, and recommended the intramuscular injection of 1 Cc. of a 10-percent solution of trisodic citrate, daily at first and then at longer intervals.

So far as present evidence goes, we are of the opinion that the greatest emphasis should be placed upon the diet, giving large quantities of fresh meat and milk and green vegetables and then treating the various symptoms as they arise on sound medical principles.—Ed.]

IMMUNITY TO TUBERCULOSIS THROUGH MILK

Tuberculosis is primarily a disease of Europeans. From Europe it spreads along the course of social and commercial intercourse. It is least virulent where it is most common, and most virulent where least common.

Our domestic animals, especially cattle, have a disease more or less similar to the human variety of tuberculosis. These infections are more or less transmissible to the human family and more or less influence the virulence of tuberculous infection in man. This transmission of infection and its effects are most noticeable between cattle and

man. The human variety of tuberculosis is sometimes transmitted to cattle and the bovine type is often transmitted to man.

While the infection may occur in any part of the body, the human variety of the bacillus usually attacks the lungs, while the bovine variety usually attacks the bones, joints and glands, often causing deformities. These deformities often require surgical operations and are called surgical cases. In 1916 the Cook County Hospital had three wards for such cases; but, with the advent of the pasteurization of milk, these have been abandoned. This more than suggests that those surgical cases were produced by a bovine infection caused by the use of milk from tuberculosis-infected cows, and that the infection was checked or prohibited by the pasteurization of the milk. As to whether this checking or prohibiting the bovine tuberculosis infection is beneficial, or otherwise, let us investigate further.

It is an accepted fact that practically all of our children have a tuberculous infection during their childhood, and it is strongly suspected that the tuberculin in the milk from tuberculous cows has much to do with the cure of this childhood tuberculosis, because statistics tell us that at least ninety percent of children or adults that use no cows milk will die if infected. That this childhood tuberculosis acts, more or less, as a vaccination against a virulent reinfection is shown by the fact that ninety percent of adults do not die in later years, and that only the ten percent who were not fully vaccinated do thus die.

With these statistical and presumptional facts before us, let us presume that pasteurization lessens our childhood infection about one third, which is approximately the percentage of bovine infection in our childhood tuberculosis. This would lessen our childhood vaccination one-third. One-third of ninety percent protection is thirty percent less protection. Thirty percent added to our ten percent would make the future deathrate for Cook County about forty percent. But, we have no reason to believe that the third of the children that formerly were infected with bovine tuberculosis are not now infected with the human variety, and are cured, as the former two-thirds were cured. This would place Chicago's future tuberculosis deathrate about on a par with its former deathrate. Theoretically, there should be a few more children who die from childhood tuberculosis, for the human variety of tubercle bacilli is more likely to destroy life than the bovine variety.

But, there is another condition that should materially influence the deathrate of Chicago. We have before us a Government map of the United States showing the approximate bovine tuberculosis infection in different localities. This map shows that Chicago and its surrounding territory has a bovine tuberculosis infection of from five to six times the general average for the whole of the United States. This excessive supply of tuberculinized milk from tuberculous cows should keep the tuberculosis deathrate of Chicago to a minimum. It should even be lower than Wisconsin's rate of eight percent, and probably would be far lower if it were not for the elimination of the cows that respond to the tuberculin test. This elimination undoubtedly somewhat lessens Chicago's tuberculin supply and has a tendency to increase the tuberculosis deathrate. Sixty four (a little over sixty percent) of the counties in the state have adopted the tuberculin test and the testing fever is increasing rapidly. This should lessen the tuberculin supply at least one-half. What effect this decrease in the tuberculin supply will have on the future deathrate can only be determined by future records.

W. S. GREGORY,

St. Joseph, Mo.

AN ERROR

On page 631 of our September number, we quoted some observations on uterine fibroids and credited "Bernays, Golden Rules of Gynecology". This valuable book was written not by Dr. Bernays but by Dr. George B. Norberg, of Kansas City, Mo.

The Leisure Hour

Conducted by GEORGE H. CANDLER, M. D.

Ducks in the Air

YELLOW'S the pumpkin, burred the dock;
Leaves on the oaks grow sere:
Brown tassels wave on corn in shock—
Blackbirds and coot are here.
Right soon
The year'll be dyin'
And the ducks a-flyin'!

Chilly the evenings, screech-owls call
Thro' woods grown brown and bare:
Down from the trees ripe apples fall—
A touch of frost is in the air.
Yes, soon
The year'll be dyin'
And the mallard flyin'!

Red now the sunsets, bright the moon;
Mist-wrapped the lake and fen:
Out on the water some lone loon
Laughs and then laughs again.
Sure, soon,
If th' loon's not lyin'
There'll be green teal flyin'!

Delays are dang'rous, best be ready;
Dig out the gun and boots:
Wind's veering North and blowing steady—
Just right for the man who shoots.
(Yes, SOON,)
In a tule blind lyin'
At th' ducks a'flyin'!

G. H. C.

Introducing Waukegan, Illinois

[Note! Settled Suburbanites are advised to skip this article. Milwaukeeans may travel through it at their own risk.]

MEET Waukegan, Lake County, Illinois! Strategically situated halfway between metropolitan Chicago and poor, bereaved Milwaukee (famous in the dear, dead, golden days for the luxuriance of its Anheuser-Busch, et cet., but now sunk to the low-water level of a near-beer burg) this city (28011 inhabitants the last time they counted noses) is due to burst forth and occupy a place in the Sun.

First of all, you must, if truly cultured, speak of Waukegan as Walk-*e*-ghan: accent upon the "e". This place *was* when Chicago was *not*, and Indians scratched their backs upon the oaks which clothe (or used to clothe) its bluffs before ever they took such comforting exercises at old Fort Dearborn. That Waukegan has snoozed most of the time for the past twenty-five years is due to the fact that everyone in town was so darned comfortable and satisfied that they hated to exert themselves and "whoop things up". There were the gas works, and the roofing-material factory, and a concern making Calf-meal (*not* a Breakfast food in the ordinary acceptance of the term—*they* all come from Michigan) together with several other industries employing labor; and the trains stopped at intervals, and the electric lights kept burning; so why worry?

Furthermore, the original Waukegans, eminently practical and totally devoid of foresight or the true artistic sense, had generously allowed the railways and the Tanneries, and the Boiler Factories to stretch themselves out all the way along the flats between the town and old Lake Mich. Therefore, later on, Waukegan couldn't very well "point with pride" to her shore-line; so there she sat up on the bluffs, and enjoyed the breezes which steadily blow on-or-off the lake, even tho' they were more or less odoriferous at times and, those who were fastidious, learned to see only the blue waters and none of the hideous intervening *objets d' industrie*. The surrounding countryside was beautiful, part of Waukegan itself distinctly lovely, and westward one could range as far as one wanted to and find an endless diversity of scenery. Moreover, in the immediate vicinity were the numerous wonderful lakes of Northern Illinois, where the fish (usually) bite, and the ducks (always) stop over on their way South; so, what more could one require? Not much, it is true; but Time brought its inevitable changes.

First of all, Chicago, dissatisfied and afflicted with acute growing pains and perfervid imaginings, began to reach out Northwards. Some one developed the simple statement, "There is but one North Shore" into a slogan and, thereupon, everyone able to go, went North. Soon the slogan gained an addition and the world was informed that, "There is but one North Shore and Only a Little Bit of it Left". So the remaining public, long trained to react to slogans, literally took up its bed (day and night variety) and trekked Waukegan-wards. Some of them got as far as Evanston and soon became "congested" again. Others, regardless of the time taken in commuting, settled the little hamlets (villages, they call 'em, I think) of Wilmette, Winnetka, Highland Park and Glencoe. The "financially mighty" even went on to Lake Forest, and a few enthusiastic souls, fond of arboreal solitudes, established themselves along the ravines at Lake Bluff. THERE, please understand, the Chicagoans' idea of the "North Shore" ENDED. Regardless of the fact that it really stretches away indefinitely almost, the people harkened to the Real Estate sharps and went no further. Waukegan was "just a town", somewhere beyond the border-line, and if you went on still a little bit you would be in Wisconsin—think of *that!*

Thus Waukegan, slighted, took no particular care to keep her "southern skirts" trim and clean. She painted not herself, nor indulged in any marcelling operations in that direction. Northward and Westward she tidied up and grew healthily, but her other fringes were decidedly ragged and uninviting. Even today, when the old town is fairly pulsing with activity, the resident has to apologize for the man-made "scenery" (?) which meets the eye of him who enters from the South. Once away from what *was* and up where things *are*, one visions, within the hour, what soon *will be*. For, despite the general exodus, there are still homeless folks in Chicago and elsewhere, and—the realtors solemnly say so—there is now no North Shore left south of this point, *so* Waukegan must be hospitable and gather them in!

Live in Waukegan a month and any red-blooded man will nail the slogan "Watch

Waukegan Walk Over" above his front door and proceed to help her walk fast—run even, if she wants to! And why shouldn't she? She has every possible convenience—and Zion only seven miles due North. That's *something!* Even tho' Voliva, that city's presiding genius, will persist in telling us the world is flat and set upon a concrete (or similarly solid) foundation, he has given to this country WCBD, distinctly one of the most satisfactory broadcasting stations existent. Moreover, tho' now and again the gentleman rants rather recklessly "over the air", he has periods of distinct sanity and then enunciates truisms (which need to be spoken) in a most refreshing, even startling manner. Yes, Zion is to the North, and Elgin with Erbstein (and the Asylum) to the Southwest. The "Radio Bug" therefore could ask no more. High ground and open spaces mean good reception, and the location assures freedom from interference.

Perhaps, that is why, after combing the North Shore between this point and Chicago, I decided to make my domicile here. Mebbe. Of course, the fact that this is a place of HOMES—not a mere aggregation of stucco and other architectural night-mares held at preposterous prices—had something to do with it. So also had the friendly spirit of the Waukeganites. Some of 'em, having seen you once, will call you "Doc" the day after and wave to you each and every time you come into juxtaposition!

The town is growing fast it is true but the main street still is "Main Street" in Waukegan, and if you can find a place to park anywhere along its length, you're much cleverer than I am. The town may have twenty-eight thousand and eleven inhabitants, but for each one of them there must be three Lizzies (count 'em), to say nothing about Bucks, Chrysalises, Battleacs and a haughty Kokomobile. No one goes to work a-foot in *this* town—they motor to their occupation—and even the tinted Venus, who has adopted laundrying as her life-work, Fords your towels and sheets to and from her tub. Moreover, she really "tubs" not, neither does she rinse, wring or otherwise illtreat the tender textiles; she "manicures" them electrically. Yes Mam!

There is prosperity in this, the county seat. There is also a nice gaol, or jail, as you prefer. I haven't been in it *yet*, but some of the beer barons have and they say it is *almost* as tolerable as the now famous hostelry in Cook County which has the honor of housing T. Druggan, Esq., when he feels like staying in. Sometimes, of course, he has found it absolutely necessary to step out and have his purple pajamas massaged, or mangled, or ironed, or pressed; and again, there have been little parties (not, we are earnestly assured, of the pajama variety) which he simply *had* to attend. Between activities he rested securely in the hospital end of the Bastile with valet and a la carte service. All this of course was in COOK County, i.e. Chicago, NOT here in Waukegan. That is why so many people who live lives of rectitude have fled (or are preparing to flee) from Cook to Lake. *Entre nous*, strictly, that is why *I* am here! I was in constant terror that I might become even as other Chicagoans—dry and desperate—and do something when trying to get wet which would lead me to meet Terry in those pajamas. I could not *bear that!* I've met all sorts of people at *dejeuners* and in *deshabile* (some of them) but a beer baron in purple pajamas—and in and out of the Bastile—would be entirely too much! We have nothing approaching this horror in Waukegan. Gentlemen here, engaged in the production or distribution of beverages (if there are such) wear ordinary blue overalls. Their visibility is less.

Waukegan has no alleys; therefore, no alley-brats or rats; therefore, no Bubonic Plague. If you are looking for a place to raise your family, bear that in mind. If you don't raise a family but prefer cats, stay with the alleys where the ratting is good. What we want here is families (there's room for them to grow up in)—not kittens; tho' for that matter the lake is immediately adjacent and there are rocks on the shore. Almost any true Waukeganite will lend you a bag. With a cat, a bag, a rock and a lake, the correct procedure is obvious. However, the really important point is that you can get ground enough to build a home on here for very much less than in the rather over-grown "sububs" South. Or, if you don't want to build, you can purchase for a reasonable (not *too* reasonable, of course) price, a real *home*, that was primarily built to *live in*, not to sell. There is a distinction—and some difference, believe me!

You can live here, forty miles out from Chicago, and whirl in over an almost satin road in one hour and fifteen minutes, that is, if your bus can do it and the motor cops don't get you *en route*. If you're con-

servative and your car a trifle arthritic, allow an hour and a half. If you have neurasthenia or are myopic and the family chariot approaches the pensioning period, say two hours. What is that out of the twenty-four? Just one hundred and twenty minutes—a mere bagatelle. Then there are fast trains (*every* train stops at Waukegan and they have to turn around at Chicago to come back), and an unparalleled electric line, which, paradoxically, parallels the steam road. It also "goes there" much faster. The lake is there for motor boats with a snug little harbor, a light-house, fog-horn 'n everythin'. The air is not cluttered up here at all, and if you *must* aviate, there are flat places all over for you to come down on. All Waukegan asks of you is that you don't "crash" in the Main Street. That is already fully occupied. A crash added to the crush would be annoying to say the least.

If you "golluf" you should be HERE! Links to the right of you, links to the left of you and everywhere, but out at sea. Every laddie over ten in this "Golfers' Paradise" is a caddie, and there is now a movement afoot to adjourn the classes at High School at 3 P. M., so that the girls may come up to the Tee in perfect form. Progressive? Right in the van! Better "come on in" before the greens freeze up for the Winter. During *that* period you ski. You'll like that, once you get the knack of sailing thro' space and looking for some place to light without appearing self-conscious or disturbed. Poise is the only thing you need. Keep that and you can ski all day and not even break a minor bone. However, should your poise desert you (or you it) there is an excellent hospital conveniently situated near the bluffs, where, of course, you can ski- or skid-best.

Because you can ski here, do not draw the conclusion that Waukegan is a Swedish or Nordski settlement. It is nothing of the kind. Neither is it, as I was long ago informed, a "Teutonic town". When (alas!) the brewery accumulated cobwebs and the seams of the kegs opened from sheer dryness, a whole lot of people from Bavaria, Hesse-Darmstadt, Schleswig-Holstein, etc. moved. Some of them of course still remain and are most estimable American citizens. Holsteins, of course (not the Schleswig-H's) are also with us in great numbers. They are engaged in the milk industry. Besides we have people of almost every known nationality—even Mexicans (NOT the hairless variety), and their cute little mustaches lend piquancy to the landscape. You simply must bear in mind, if you are going to properly understand and appreciate Waukegan, that in the immediate vicinity there are some great industries (most of them, Heaven be thanked, are in North Chicago), and great industries necessitate the use of labor. American industries pay well and laborers therefore come from all over the world to "do their stuff". They also spend their earnings where they work and that means that Commerce flourishes in the vicinity. As the local business men acquire wealth, they build themselves modern homes and acquire more of the luxuries of life, and as they spend, so others acquire and thus, finally, there develops the *prosperous community*.

Such is Waukegan—strategically situated half way between Chicago, Illinois, and Milwaukee, Wisconsin, (with Zion close in)—the *coming* Town of the North Shore: an old and seasoned place with Homes, spacious Lawns and Gardens, real forest Trees, wonderful Lake vistas, and breezes which will blow the cobwebs out of any overworked urban brain. It is inhabited by real honest-to-goodness people—not by illiterates or snobs, and he who would sit under his own vine and apple tree in peace or play golf, hunt and fish the while his property increases one hundred per centum in value had better get in while the getting in is good. Wherever you may be, don't forget Waukegan, Illinois. You're going to hear a lot more about it from this time on.

N. B. Please do not confound Waukegan with North Chicago. That's where they make things—particularly the wherewithal to live elsewhere!

Diagnostic Pointers

MEASLES

Although the rash in measles commonly appears on the fourth day, the eruption may be the first sign of the disease; or it may be delayed for 7 or 8 days. There is no disease in which the length of the invasion period is so variable.—Dr. Samuel Gee, of London.

ILEOCECAL INCOMPETENCY

In incompetency of the ileocecal valve, the most prominent symptoms, in the order of their frequency of occurrence are: intestinal toxemia; constipation; ileal or cecal stasis; colitis; diseased appendix; headache; and marked gastric pain. The diagnosis is by gastrointestinal skiagrams. The radical cure is by surgery.—Dr. J. H. Kellog, in *Med. Rec.*

CHLOROPHYLL TEST FOR GASTRIC MOTILITY

The patient, on a fasting stomach, drinks 400 Cc. of water, colored pale green by the addition of 20 drops of a watery solution of chlorophyll. After ½ hour the residue is aspirated with a stomach-tube and the amount noted.

This method is quick and easy for physician and patient and is as accurate as the Leube test meal, without its disadvantages. —Dr. Franklin W. White, of Boston.

EOSINOPHILES IN SCARLATINA

In mild cases of scarlatina, without complications, the eosinophile count is highest—frequently 12 percent, and sometimes as high as 19 percent. In more serious cases, it may be as low as 1 to 3 percent.—Markovitch & Gueratovitch, in *Presse Médicale*, Paris.

GALL BLADDER DISEASE

The characteristic symptoms of gall bladder disease are:

1.—Indigestion: fullness, especially at night and having no relation to food.

2.—Eructation of gas.

3.—If actual pain there is vomiting.

4.—Relief after vomiting.

5.—Tenderness (if the gall bladder is infected).

6.—If gastric symptoms persist and tenderness is marked, gall-stones are present.

7.—If there is sharp, abdominal pain, referred to the back or to the right scapula and relieved by vomiting, gall-stones are certainly present.

8.—A *transient* jaundice completes the picture.—Dr. Thomas L. Rhoads, M.C., U.S.A.

GLANDULAR FEVER

Onset sudden, with sore throat, stiff neck, pain in left hypochondrium and, frequently, nausea and vomiting.

Lymph glands (especially the cervicals) swollen and tender; tenderness and sometimes swelling of spleen; temperature normal in A. M., rising to 100° to 102° F. in P. M.; leucocytosis 15,000 to 25,000 with high percentage (60 to 85 percent) of small mononuclears.

Runs its course in 1 to 2 weeks and leaves patients prostrated out of proportion to rather mild symptoms.—Dr. P. F. Morse, in *J. A. M. A.*

TEST FOR CURE OF GONORRHEA

Patient should take vigorous exercise the day before examination and not urinate for 2 hours before examination.

Test should show the following, if the case is to be considered cured:

1.—No urethral discharge, or only a mucoid drop.

2.—If drop is found, it must be free from gonococci.

3.—Two glass test; both glasses clear.

4.—Massage of prostate should show secretion free from gonococci and with few leucocytes.

5.—Examinations with a *bougie a boule* should show no stricture.—"The Venereal Diseases"—A. M. A.

APPENDICITIS

Murphy stated that the *order* of appearance of symptoms of appendicitis is as follows:—

1.—Pain; epigastric or general abdominal.

2.—Nausea or vomiting.

3.—Tenderness, most marked over McBurney's point.

4.—Fever.

5.—Leucocytosis.

If these symptoms occur *out of this order*, the case is probably *not* appendicitis.

EXAMINE YOUR CHILD PATIENTS

In pediatric practice, it is reckless to assume professional charge of a case without thoroughly examining the throat, ears and nasal cavities. We can not afford to neglect these examinations in a single case.—*Med. Clinics of North America.*

TAKING THE TEMPERATURE

In cases of doubt or where slight degrees of fever are suspected, always take the temperature in the rectum, as this reading is far more reliable than the mouth temperature when the elevation is not great.—Dr. Thos. F. Reilly, of New York.

VOMITING IN CHILDREN

Do not regard every severe case of vomiting, occurring in children, as clear evidence of gastritis; exclude other diseases. Remember that repeated vomiting attacks may be the first symptom of pneumonia and are a very regular symptom at the onset of scarlet fever.—Dr. John Zahorsky, of St. Louis.

EXAMINING JOINTS

Never examine a swelling or injury in or near a joint without examining the corresponding joint in the other limb; and do not fail to examine in all positions of the limb—flexion, extension, rotation, etc.—Dr. A. C. Bernays.

GOLDTHWAITE'S SIGN

In recent *sacroiliac displacements*, if the patient is placed on the table, lying on his back and is told to raise the leg on the affected side, he will, in severe cases, be unable to do so.—Dr. Wm. B. Snow, of New York.

HERXHEIMER REACTION

The Herxheimer reaction is the aggravation of the symptoms or the appearance of new symptoms which sometimes takes place in the beginning of an *efficient* antisyphilitic treatment.

INTESTINAL OBSTRUCTION

The three diagnostic signs of intestinal obstruction are:

1.—Peristaltic pain, increased by food and cathartics.

2.—Persistent vomiting, not relieved by lavage.

3.—Constipation, not relieved by enemata. —Dr. Andersen, in *N. Y. M. Rec.*

URANALYSIS FOLLOWING DIPHTHERIA

Repeated examination of the urine during and for several weeks following an attack of diphtheria is warranted because of the frequency of toxic nephritis.—Dr. Maxwell P. Borovsky.

UTERINE TUMORS

Remember that the character and location of a uterine tumor will determine the amount and duration of the bleeding. A polypus generally causes constant bleeding, as well as an increase in the menstrual flow. Submucous and interstitial fibroids are usually accompanied by menorrhagia; the subserous and intraligamentous fibroids have little if any effect upon menstruation. —Dr. Geo. B. Norberg, of Kansas City, Mo.

CONSTIPATION

A patient may have daily bowel movements and still be constipated. Boas defines constipation as the inability of the intestine to expell its entire contents within 48 hours. [Kellogg says that everything eaten one day should be expelled by the following morning.—Ed.] Check up on your patients who have daily defecations but present symptoms of intestinal autotoxemia.—Dr. Zachary Sagal, of New York.

INDURATIVE HEADACHE

If usual methods fail to reveal the cause of chronic headache, palpate the occipital, nuchal and interscapular regions to determine the presence of tender nodules, fibers or bands beneath the skin in these regions.

The presence of these nodules and cords is said to be the cause of (or to be present in) 40 percent of the chronic headaches of adult life.

The patients feel worse in cold, damp weather. — Dr. Augustus Maverick, in *N. Y. M. J.*

Current Medical Literature

BISMUTH IN SYPHILIS

"Wassermann-fast" cases are those syphilitics who have had one or more regular courses of arsphenamines and mercury without producing any appreciable effect upon the blood Wassermann reaction.

Drs. L. K. McCafferty and J. A. MacGregor, of New York, have carried out a prolonged series of experiment which lead them to the conclusion that bismuth produces decidedly favorable serological results in these cases. Their results are published in the *Am. J. Med. Sc.* for July, 1925.

They found that a large percentage of these Wassermann-fast cases become negative after administering bismuth and remained so for one year; also that albuminuria is not more frequent following bismuth then in the course of other antisyphilitic treatment, nor do any other untoward effects appear if the bismuth is properly administered.

SANOCRYSIN IN TUBERCULOSIS

The Medical Research Council, of England, has been investigating the gold and serum treatment of tuberculosis, recommended by Prof. Møllgaard, of Copenhagen (mentioned in CLINICAL MEDICINE for February, 1925—p. 135), and publish a preliminary report in the *Brit. M. J.*, for April 18, 1925.

The Council offers the following *Summary of Clinical Results*:

"Clinical experience in Britain has confirmed the description in Professor Møllgaard's book of the immediate effects of sanocrysin as seen in Danish hospitals. The drug does appear clinically to have a specific action on tissues infected by tubercle bacilli, and the severity of the constitutional reactions does appear to be directly related to the intensity of the tuberculous infection. Further, the drug seems to have but slight toxicity for human patients who are not infected by tuberculosis, though in this respect very few control observations have been made. On account of the severity of the reactions in the first tuberculous patients chosen for treatment, no observer at the beginning felt justified in deliberately making control observations in other febrile infections. For the same reason no one cared to begin straight away with the treatment on a large number of tuberculous cases, but each observer preferred to select three or four individual patients and proceed cautiously.

"The total number of cases covered by this preliminary report is small — about thirty, of whom twenty-two definitely had tuberculous infections of the lungs. Two of the pulmonary cases died, death in one hopeless case being perhaps accelerated by the treatment, and occurring in the other unexpectedly as the result of toxic jaundice. The remaining twenty do not lend themselves to any numerical analysis. Uncomplicated pulmonary tuberculosis is a disease of which few physicians can confidently foretell the progress, upward or downward, during any given period of two or three months, which was all the time available for these preliminary observations. But it was the opinion of those observers who had had most experience in dealing with consumption that the early cases of open tuberculous infection of the lungs did show some evident improvement, though there was no dramatic benefit, such as that seen with insulin or salvarsan in their corresponding diseases. On the other hand, cases with more advanced disease did not stand the treatment well, and the condition of some of these has been made worse. The latter experience accords with that of Dr. Secker of Copenhagen. Serious cases of long standing cannot endure the treatment in its present form.

"There were two cases not included in the preceding twenty, in which most striking improvement followed at once upon the use of the drug, both the patients having lain three months in hospital previously without making any advance. One appeared to be a case of closed tuberculosis of the lung, spreading out from hilum glands, though it cannot be proved that the pulmonary inflammation was caused by tubercle bacilli and not by some other smouldering infection. The other was a case of tuberculous peritonitis with an encysted collection of fluid that vanished at once upon treatment. In each instance the patient showed the rash and rise in temperature that in other proved cases of tuberculosis have followed the injection of sanocrysin. No case of pleural effusion was treated in this preliminary group because the results in this condition would not have offered any decisive evidence. Lupus of the skin, spinal caries, renal tuberculosis and tuberculous glands are now being treated, but their progress is not sufficiently advanced to be included in this report.

"The evidence, therefore, despite the relatively poor results in open pulmonary tuberculosis—and that is unhappily the commonest form of tuberculosis—is sufficiently encouraging to demand further clinical study. This is particularly so in view of the one experience common to all observers—namely, that the drug seems to exert a specific action on tuberculous tissues. The Medical Research Council expects that many months will pass after the issue of this preliminary report before any further definite conclusions can be

drawn. Trial on a large scale is now justified, and it is hoped to widen the field of work with the help of more observers. But the Council is of the opinion that such further trial and extended observations are imperatively required before it can be clearly stated that this gold salt is of value in the treatment of tuberculosis and before it should be made available for general use in medical practice in Great Britain."

CAUSES OF DEATH AT CHILDBIRTH

The death rate from causes connected with childbirth in New York City as reported in the *N. Y. S. J. M.* for April 3, 1925, ranged between 44 and 70; and in New York State, outside of New York City, it varied from 53 to 83. Puerperal sepsis comprised 27 percent of these deaths in the entire state; 25 percent in New York City and 30 percent in the rest of the state. The prevention of death in the remainder of the cases would seem to depend mostly on the education of the public; adequate clinical and hospital facilities for the care of the poor and those of moderate means; measures to make available, if possible, expert obstetric advice for physicians in remote rural districts, or facilities for early removal of abnormal cases to the obstetric expert; elevation of the standards of obstetric training and practice for physicians, and clinical, pathologic, and statistical research to discover facts at present unknown, and to determine the routes of puerperal infection. (*J. A. M. A.*)

DICHLORAMINE-T IN DENTISTRY

In the *Brit. Dent. J.*, for June 15, 1925, Alexander Livingston, of Kings College Hospital, presents an interesting review of the chlorine-bearing antiseptics and makes very favorable comments on their use in dental surgery.

In acute infections, where free, open drainage can be obtained, Livingston prefers a watery solution of chloramine-T, in strength from 2 to 5 percent. This solution also works well in fracture cases.

In chronic cases and where dressings must be left in place for some time dichloramine-T, in 5-percent solution in chlorcosane, gives better—in fact, often, very striking—results.

Several cases of infected tooth sockets, septic sequestra, marginal gingivitis and other oral conditions which responded in a highly satisfactory manner to the use of this solution are reported in some detail.

THE THERAPEUTIC BATH

Baths as remedial measures are not used so freely nor so frequently as their value warrants.

Dr. Albert C. Geyser, of New York, in the *J. Am. Assn. Med.-Phys. Research*, for June 15, 1925, shows how the properly administered bath produces curative results by stimulating the patient's own defensive mechanisms. His technic is as follows:

First cleanse the teeth, mouth and nares. Then douche the rectum, first with water at 100° F., and, when this has passed, give a second douche, at 75 degrees.

When the lower bowel is clean, have the patient enter a bath which will cover the entire body, at a temperature of 100° F.; rapidly raise the temperature to 107° F. and maintain it at that point for 30 minutes, giving the patient cold drinks, meanwhile; after 30 minutes, gradually lower the temperature to 80° F. by adding cold water; when this temperature is reached, dry the patient by vigorous rubbing with a rough towel and put him to bed, between blankets, in a well-ventilated room, giving him hot drinks. He should react by warmth and sweating, in a few minutes. He must stay in bed for *at least* an hour.

If the patient has a temperature of 104° F. before the bath the hot part of it is not needed. Put him into a tub at 80° F., or in a cold pack and *watch him*. If he does not react promptly apply external heat.

This sort of bath, properly carried out, is of value in all chronic conditions, no matter what their nature, and in many acute conditions as well.

ANTISEPTIC VALUE OF ACRIFLAVINE

C. H. Browning and R. Gulbransen, of Glasgow, report in the *Brit. M. J.* for April 11, 1925, the results of some interesting experiments in the chemotherapy of recent wound infections, undertaken for the purpose of shedding light upon the question of whether or not recent localized infections can be effectively treated by antiseptics applied to the infected area.

Experimental wounds in the subcutaneous tissues of guinea pigs were infected with a virulent culture of diphtheria bacilli and, after periods of 45, 75 and 120 minutes, the wounds were swabbed with a 1-percent watery solution of acriflavine or with a 5-percent phenol solution. All animals treated with the neutral acriflavine were alive and well at the end of three weeks; those treated with phenol solution died in 4 to 8 days; all controls died in 48 hours.

The authors are convinced by these experiments: (1) That local antiseptic treatment of fresh wounds is effective; (2) that neutral acriflavine in concentration of 1 in 100 to 1 in 1000 caused the survival of 100 percent of the experimental animals; and (3) that the therapeutic effectiveness of neutral acriflavine is 50 to 1, as compared with carbolic acid.

TREATMENT OF ULCERS

The antiseptic treatment of ulcers is unsatisfactory because the drug used reaches only the surface bacteria.

In the *Brit. M. J.* for April 18, 1925, Dr. S. A. Pfannenstill, of Malmö, Sweden, recommends that patients with ulcer be given sodium iodide, by mouth, in average doses of 15 grains (1.0 G.) three times a day and then that the physician apply to

the lesion some solution which will liberate free iodine *in the tissues*.

The method recommended is to administer the iodide and then keep the ulcer covered with a pad of cotton continuously moistened with a 1- to 3-percent solution of hydrogen peroxide, acidified, to the extent of ¼ to ½ percent, with acetic or boric acid.

The author reports excellent results in the treatment of ulcers of the skin and mucous membranes, due to ordinary pyogenic organisms, Vincent's organisms and even tuberculous ulcers and lupoid conditions.

FLUMERIN IN SYPHILIS

Flumerin is the disodium salt of hydroxymercurifluorescein and represents an attempt to develop an organic salt of mercury which would combine therapeutic value, low toxicity and absence of local irritating qualities. It is a dark red powder, freely soluble in distilled water, stable and self-sterilizing in 2-percent solution and contains 32.5 percent of metallic mercury. It does not precipitate the protein of blood serum.

Drs. J. C. Fox, G. H. Gildersleeve and J. F. Preston, of New Haven, Conn., have reviewed the literature and have used this remedy, alone or with arsenicals, in 24 cases of syphilis, reporting their results in *Arch. Dermat. & Syph.* for June, 1925.

These authors always use a 2-percent solution and give 10 intravenous injections at intervals of 3 or 4 days: two injections of 3 mg. per kilogram of body weight; 2 of 4 mg.; and the remaining 6 of 5 mg. per kilo, providing no toxic symptoms have appeared.

Based upon the reports of others as well as upon their own work, Fox *et al* find that flumerin is superior to the other mercurials in therapeutic value but inferior to the arsenicals. Toxic reactions are comparatively frequent and the effect upon the Wassermann reaction is not uniformly striking.

Its use introduces an economic complication into the treatment of syphilis by requiring a course of injections between the courses of arsenicals. This may be justified in early or severe cases.

It should be used only in conjunction with the arsenicals or in patients shown to be intolerant or resistant to these compounds.

SNAPSHOT DIAGNOSIS

The attempt to make a diagnosis without careful examination is very clever and spectacular—if it succeeds. If it fails (as it generally does) the patient suffers.

Dr. J. F. Montague, of New York, in the *M. J. & Rec.* for June 17, 1925, shows how easy it is to make a snapshot diagnosis of hemorrhoids from a history of pain on defecation, protrusion from the anus, rectal bleeding, "itching piles", or pain and bleeding on defecation.

Careful proctoscopic examination, however, shows these cases to be, respectively: anal fissure, prolapse of the rectum, chronic ulcer of the rectum, condylomata and adenocarcinoma.

Dr. Montague suggests that it might be of service to remember that not all rectal pains are due to piles, nor is all rectal hemorrhage due to hemorrhoids.

LACTIGEN IN PSORIASIS

The Brit. M. J. for April 11, 1925, carries a very interesting report by Dr. J. B. Mackay, of Alberta, Canada, upon the treatment of psoriasis, a disease which causes much discomfort and discouragement to both patient and physician.

Dr. Mackay's suggestions are, in brief, as follows:

"I believe I have discovered a combined treatment for psoriasis which is not only effective but simple. All possible sources of infection must first be carefully eliminated. I have, rightly or wrongly, traced the original source of the disease in several cases directly to oral sepsis, and I should not expect a satisfactory result until such foci had been removed.

The treatment consists of four concurrent procedures, the most important of which is, I think, a series of intramuscular protein injections. Having found it handy and effective, I have used throughout Abbott's "lactigen", commencing with 5 Cc. and gradually increasing the subsequent doses to 10 or even 15 Cc. The injections are given every three or four days, the rate of increase being determined by the amount of reaction. Usually, six injections are sufficient, and, within reasonable limits, the more definite the reaction is the better are the results. A rise of temperature to 101° to 102° F. during the night following the injection is desirable. An ointment containing chrysarobin is applied daily to each patch (chrysarobin gr. xx, liq. carb. deterg. m xxx, ung. hydrarg. ammon. chlor. drams ii, petrolati ad oz.i). It is essential that this should be rubbed in; any irritation of the surrounding skin can usually be relieved with talcum powder. Once a week a hot bath is taken, after which the exact state of the lesions can be readily seen. Internally, thymus gland in 5-grain capsules, three or four times a day, is prescribed. If preferred, it may be given by intramuscular injection, or the same effect may be produced by stimulating the thymus with small doses of x-rays, as recommended by Brock (*Münch. med. Woch.*, lxviii, 191, 1921). Without thymus medication the same steady improvement is not seen; the healing process is more irregular and the results less satisfactory. Lastly, a low protein diet will hasten results; it should be maintained after cure.

In my hands the average length of time for the disappearance of all lesions and the return of the skin to normal has been five weeks. The more recent the appearance, or the more "acute" the case, the more speedily it responds; a change can generally be seen within the two days following the first injection, after which the improvement

is steadily maintained to ultimate cure. All the amounts stated above refer to adult doses. In my series of cases, only one relapsed after treatment; this patient had patches of psoriasis all over the body, and the condition had lasted for many years. Two further injections resulted in cure."

PATHOLOGICAL CHANGES FROM MERCUROCHROME-220

When a new drug achieves success in any one field, there is a tendency to enlarge the scope of its usefulness unduly. Dr. H. J. Corper, of Denver, has done some interesting work in the use of mercurochrome hypodermically and in the lungs and pleura, and reports his results in the *J. A. M. A.* for July 25, 1925. His conclusions follow:

Mercurochrome-220 soluble, from 0.5 to 2-percent solution, injected subcutaneously, intratracheally and into the pleural cavity of the dog produces profound pathologic tissue changes, which, in the lungs, result in permanent parenchymal damage initiated as an acute hemorrhagic pneumonitis with focal abscesses, and terminating in tissue destruction and resultant proliferative pneumonitis. Intrapleural injections, in addition to producing a marked hemorrhagic pleuritis, result in pulmonary injury resembling that following the intratracheal administration. Intracutaneous injections result in ulcer formation in concentrations down to 0.5 percent. Recognizing the ready aspiration of fluids from the trachea into the terminal respiratory divisions (alveoli) of the lungs, it would seem inadvisable to treat pulmonary conditions, and especially tuberculous cavities, by means of injections of mercurochrome. Likewise, the treatment of empyemas, either acute or tuberculous, by means of mercurochrome in concentrations exceeding 0.1 percent is advised against, not only on account of the action of the drug on the pleura, but also because of its coincident pulmonary effect, which occurs following the intrapleural administration of the mercurochrome. In the dog, this was evident also in the contralateral lung, probably because of the unity of the pleural spaces, or as a result of rapid diffusion of the drug through the mediastinum in this animal, as pointed out by Graham and Snyder, which possibility may exist for man, although apparently to less extent.

In view of the foregoing findings, it seems well again to warn against the general clinical use of any new drug without sufficient preliminary animal study, in all the conditions under consideration, to determine its pathologic effect.

EFFECTS OF EXTERNAL HEAT ON HUMAN BODY

Pemberton (*Am. Jour. Med. Sc.*, April, 1925) has for some years been studying the changes accruing from exposure of the body to external heat in the form of radiation from electric lamps, the socalled "bake." Such exposure results in a heightened blood-flow, increased metabolism and in the elimination of acids, chiefly carbon dioxid which escapes through the lungs, urine and sweat in the order of magnitude named. This leaves an excess of alkali in the blood which then changes its reaction, becoming more alkaline. In the compensatory effort to meet this situation, the excess of alkali is eliminated through the sweat and urine. If carried to extremes, tetany may result. The available evidence indicates that part of the benefit of the sweat process, in some forms of nephritis, is due to loss of acid substances from the body, with consequent benefit to the acidosis frequently accompanying renal disease. (*J. A. M. A.*)

LABORATORY REPORTS

Dr. Victor Cox Pedersen, of New York, feels that much harm may be, and frequently is, done by giving patients the reports received from laboratories, or copies of them. The patient, having no very clear knowledge of what the reports mean, may be unduly frightened or, on the other hand, may be lulled into a false sense of security.

In the *Medical Times*, for July, 1925, Dr. Pedersen states that a diagnosis should be based upon at least four elements: 1. A full and complete history, furnished by the patient or his relatives; 2. One or more searching physical examinations; 3. Clinical laboratory examinations of all available specimens, with x-ray examinations when indicated; 4. A full knowledge of treatment administered and its results. This last is of more importance than many physicians realize.

The reports from the various laboratories belong in the files of the physician who is treating the case—and nowhere else.

What the patient is entitled to, and should receive if he requests it, is a brief and carefully-considered statement of the attending physician's opinion as to the diagnosis and prognosis of the case, based upon the four diagnostic factors already noted, plus his study of these factors. A paragraph should state that this report is valid only for the time at which it is made, and not one, two or five years later.

THE SOCALLED INTERVAL PAIN

In many women, a sensation of pain is felt, which appears about the third week after menstruation and which sometimes is quite severe and may be accompanied by a slight discharge of blood. It is sometimes popularly designated as "little menstruation" or "false menstruation", and has been explained variously by gynecologists.

The late Prof. C. H. Stratz quoted a number of German gynecologists, some of whom associated this interval pain with ovulation, while others attributed it to chronic endometritis. Stratz himself points out (*Zentralbl. f. Gynäk.*, 1924, No. 18) that the occurrence of the interval pain agrees with the time when the follicles burst, and claims that the phenomenon may be accepted as a symptom of painful ovulation. He suggested that it might be due to a somewhat tough connective tissue which resists bursting, or to

insufficient vascularization, with or without venous hyperemia.

Ordinarily, women who have complained of the interval pain before marriage lose it when a better vascularization of the genital organs takes place. This agrees with therapeutic experience to the effect that pain is relieved by remedies that promote the flow of blood to the internal genitals.

Stratz concludes from all these observations that the interval pain is a form of painful ovulation, that it appears at the physiological period of maturity of the ovum and that it may be produced by various pathological disturbances of the ovary. Although there are differences both as to time and the nature of the symptom, Stratz is of the opinion that those cases, in which dysovarism (painful ovulation) agrees more or less (as to time) with menstruation, are designated as ovarial dysmenorrhea, which differs from uterine dysmenorrhea in the localization of pathological changes either in the ovaries, the adnexa, or in the uterus.

In some cases of ovarial dysmenorrhea, the pain often occurs even before the flow and sometimes lasts longer than its duration. In uterine dysmenorrhea, the pain appears together with the flow or soon after its commencement and ceases with it.

Theoretically, it may be concluded that only uterine dysmenorrhea is actually a dysmenorrhea; that the ovarial dysmenorrhea is an ovulation pain, not a dysmenorrhea, and that it is associated with menstruation merely with regard to time.

Frequently enough, the same affection involves both uterus and ovaries and then the pathological phenomena are very difficult to explain. However, it is important to separate as much as possible disturbances of ovulation from those of menstruation.

GASTRIC ULCER RESEMBLES HYPERTHYROIDISM

Dr. George W. Crile, of Cleveland, Ohio, is of the opinion that there is an analogy between gastric ulcers and hyerthyroidism, and sets forth his ideas in the *Illinois M. J.*, for August, 1925.

Both these diseases are somewhat obscure in their etiology and in both there is a combination of etiological factors rather than one clean-cut and definite cause.

In hyperthyroidism and gastric ulcer, the central feature is a hypersecretion; both tend to occur in early adult life; both develop in an atmosphere of strenuous living and are brought on or aggravated by overwork, worry, focal infection and autointoxication; both are increased by a high protein diet and associated with changes in the personality; both are improved by a holiday with complete change of scene or by relief from grief or anxiety. Neither of these diseases occurs among inferior races, morons or the insane, but both are prevalent among the type of men and women who are carrying the burden of civilization.

The successful management of hyperthyroidism and hyperacidity requires not only medical and surgical means but a reeducation; a changed point of view; a new philosophy of life, and is thus dependent, largely, upon the personal equation of both physician and patient.

If partial thyroidectomy is the proper treatment for a hypersecreting thyroid, it would seem logical that a more or less extensive gastric resection would prove to be the proper treatment for a hypersecreting stomach, and Dr. Crile's results suggest that this is the case.

PERTUSSIS TREATED BY X-RAYS

Dr. Lawrence W. Smith, of Boston, with a group of eight other physicians, has analyzed the clinical and laboratory findings in 850 cases of pertussis observed in the whooping cough clinic of the Boston Floating Hospital and report the results, in the *J. A. M. A.* for July 18, 1925, as follows:

An analysis of 850 cases of pertussis treated by roentgen ray proves that:

1.—This means of therapy is of value in reducing the number and severity of the paroxysms and in shortening the course of the disease.

2.—The majority of the cases (750) occur under 7 years of age.

3.—Most of the patients (499) present themselves in the paroxysmal stage.

4.—The greatest benefit occurs in the paroxysmal stage, and especially in the younger patients.

5.—Early diagnosis can be established bacteriologically and by blood examination, as the disease is accompanied by an absolute and relative lymphocytosis in 80 percent of cases during the catarrhal stage.

6.—Suitable vaccines made from organisms with an agglutination titer of 1:1,600 plus are effective prophylactically, and if given in sufficiently large and frequent doses are of value therapeutically, suggesting that immunization is quantitative.

These observations suggest that, by early diagnosis, adequate quarantine for the actual infective period can be required, with a concomitant decrease in the morbidity and mortality.

HEALTH EXAMINATIONS

Most of us, in making a health examination, are inclined to simply go at the man, "as is", without considering his past, present or future, except as regards his physical body.

In *Medical Economics*, for May, 1925, Dr. C. Ward Crompton, of New York City, tells how they do it at the New York Postgraduate Medical Health Service Clinic, and one of their features is a blank whereon the examinee sets down, in black and white, his own personal impression of himself.

He is expected to tell, not only about his health, strength, stamina and endurance, but what sort of work he is doing, how many hours he works and whether or not he likes it; what sort of hours he keeps and what are his habits as to exercise, tobacco and alcohol; what things he likes

and dislikes; and what he hopes to be and do ten years hence.

It is a fine questionnaire, and if every one of us would require our patients to fill out a form like that it would not only make our health examinations mean a lot more than they do but would give us some lines on diagnosis and treatment which would help immeasurably.

MILK-PROTEIN IN SYPHILIS

Drs. S. S. Greenbaum and C. S. Wright have demonstrated that, if nonspecific protein therapy, in the form of milk or milk-protein injections, is combined with specific treatment, by means of neosalvarsan (neoarsphenamine), the Wassermann test will become negative in 68 percent of cases, as compared with 48 percent where the protein is not given; will be negative after an average of 4.7 injections, as compared with 7.5; and will remain negative for considerable periods in 52 percent of cases, as compared with 20 percent where neosalvarsan alone is used. These results are reported in the *J. of Urol.* for June, 1925.

The method consisted in giving 6 intramuscular injections of milk-protein during the 2 weeks prior to beginning the regular course of intravenous injections of neoarsphenamine.

ARTERIAL HYPERTENSION

In the *Boston M. & S. J.* for May 7, 1925, Dr. Wm. D. Reid, of Boston, Mass., presents an interesting study of high blood pressure.

In connection with the general phases of the subject, he considers its relation to arteriosclerosis and nephritis which he holds to be *associated conditions* and not *causes*. The influence of diets rich in protein or sodium chloride, of the use of tobacco and of the factor of heredity he believes to be less important than has sometimes been declared, and suggests that hypertension results from a disturbance of the balance of the nervous mechanism controlling blood pressure.

On the other hand, the state of the calcium metabolism seems to be of great importance and Dr. Reid believes that lime-deficiency weakens the inhibitory effect of the vagus, so that the sympathetic, a stimulation of which results in hypertension, is more or less unopposed. The sympathetic stimulation may well come from the guanidin compounds which have recently been studied by Major.

Considering that the injection into animals of the guanidin compounds produces a rise in blood pressure, which promptly returns to normal after the administration of calcium, Dr. Reid suggests that a diet deficient in calcium is the primary cause of arterial hypertension.

REGIONAL ANESTHESIA IN MAJOR UROLOGICAL SURGERY

The disadvantages of general anesthesia are too well understood to require extended comment, and regional anesthesia is coming into wider use day by day.

Dr. Oswald S. Lowsley, of New York, contributes an article on this subject to the *Boston M. & S. J.* for Sept. 3, 1925, and emphasizes the fact that practice makes perfect in this field, as well as in all others.

In preparing a patient for operation under regional anesthesia, any purgation deemed necessary is completed at least 24 hours before operation; but alkaline fluids are given by mouth and by rectum during the preoperative period. No morphine is given preceding the anesthetic.

Procaine is the anesthetic of choice and the maximum dose is 1 grain for each 100 pounds of body weight given in a 1-percent (sometimes ½ to 2 percent) solution. This solution is freshly made and sterilized by boiling 1 hour before use. The addition of adrenalin or other drugs to the solution is contraindicated.

The patient *feels* everything that is being done (though there is no sensation of pain), so all manipulations must be performed very gently.

Dr. Lowsley reports a series of 279 major urological operations where regional anesthesia was used with good results in 230 cases; fair results in 40 cases; and poor results in only 9 cases. Shock was present in but 4 cases.

APPENDICITIS HELD TO HAVE BEEN CAUSED BY A BLOW

(Clark v. Department of Labor and Industries (Wash.), 230 Pac. R. 133)

The Supreme Court of Washington says that respondent Clark, while an employee of the Diamond Match Company and engaged in assorting blocks conveyed from saws, was struck on the right side of the abdomen by a block thrown from a saw. Almost immediately she complained of severe pain, and suffered from nausea. The following morning her physician determined that she was suffering from acute appendicitis. This condition continued for eleven days, when an appendectomy was performed. The appendix was three times the normal size, with reddened veins. A claim for compensation was presented to the Department of Labor and Industries, under the workmen's compensation act, but was rejected on the ground that the "claimant's condition was not the result of the accident, within the meaning of the compensation act." An appeal was taken to the superior court, which after a trial without a jury, found and concluded that respondent's injury caused appendicitis, and that she was entitled to compensation. From that judgment came this appeal. While the respondent contended that the blow received was the cause of the appendicitis, the appellant contended that the blow did not, and could not, produce appendicitis, or be its contributing cause.

There was a direct conflict between the testimony of the physicians. Those for the respondent, including the physician who treated her immediately after the injury and continued the treatment until after the

operation, testified that appendicitis can be superinduced by trauma. On the other hand, the chief medical officer of the department seemed to be very positive that appendicitis does not result from accident; that nothing could change his mind on that subject. The view of the trial court and the physicians testifying for the respondent was fortified by an article in *The Journal of the American Medical Association* of May 19, 1923, by Dr. Luddington of New Haven, Conn. In that, medical writers of world-wide fame were quoted to the effect that appendicitis may be, and often is, caused by a blow on the abdomen, or severe muscular strain. Dr. Osler was quoted to the effect that "trauma plays a very definite rôle, and in a number of cases the symptoms have followed very closely a fall or a blow." This article in itself is very logical and convincing. On the whole, therefore, the supreme court is satisfied that the finding of the trial court reversing the Department of Labor and Industries, and in favor of the respondent, was well sustained by a preponderance of satisfying evidence, and that the respondent was entitled to recover compensation. *J. A. M. A.*, May 23, 1925.

SPRUE AND PERNICIOUS ANEMIA

The impression seems to be gaining ground that sprue and pernicious anemia have some definite relations to each other. The blood picture is similar in the two diseases—high color index (1.25 to 1.66) and low hemoglobin (20 to 30 percent); poikilocytosis; nucleated red cells; etc.

Several articles have recently appeared on this subject, of which the following are a few:

1.—Dr. Edward J. Wood, of Wilmington, N. C., in *Am. J. Med. Sc.* for January, 1925, and *Southern M. J.*, March, 1925.

2.—C. Elders, of the Hague, in *Lancet*, January 10, 1925.

Elders has something to say as to the diet in treating these cases, and recommends the following:

Underdone meat up to 2 pounds or more daily; 1½ to 2 quarts of milk, with aqua calcis, 15 Cc., five times a day; 15 to 30 Cc. of cod-liver oil; a few oranges or 400 G. of strawberries.

The doctor states that he has not lost a case of sprue on this diet, and that several cases of pernicious anemia have been greatly improved by the same treatment.

X-RAYS, RADIUM AND SURGERY IN CANCER

Dr. Francis Carter Wood, director of the Institute of Cancer Research of Columbia University, has just supplied an article to the Encyclopedia Americana Annual, which is summarized in the *Campaign Notes* of the Am. Soc. for the Control of Cancer.

Dr. Wood states that the best opinion, today, inclines toward operating surgically whenever such operation offers a reasonable hope of radical cure. This is especially true in cancer of the breast. Where this is not the case, and in the strictly inoperable cases, irradiation should be used.

The choice between radium and x-rays is largely a matter of the location of the growth, as the effects differ but little. X-rays are preferable for superficial growths, especially if they are extensive; while radium or its emanations are best for use, in suitable applicators, for imbedding in the pathological tissues, which are thus destroyed without damage to healthy structures.

EFFECTS OF PROTEIN INJECTIONS

The growing importance of nonspecific protein therapy has rendered a study of the physiological effects of the various substances thus employed of the highest importance in assisting a decision as to which should be used in a particular case. Dr. Chingson Y. Ling, of Philadelphia, has made such a study and reported the results in the *Archiv. of Int. Med.* for May 15, 1925.

The substances injected for the tests were:

1.—Sterile distilled water.

2.—Autoserum—from same person or rabbit, refrigerated.

3.—Normal horse serum—stock preparation.

4.—Certified milk, boiled for 10 minutes.

5.—Ordinary market milk, boiled for 10 minutes.

6.—Crotalin (rattle snake venom) in solution.

7.—Sterile 1-percent peptone solution, in saline.

8.—Typhoid vaccine, 100,000,000 per Cc.

The effect of these various agents upon, (a.) the body temperature, (b.) the number of leucocytes in the blood, (c.) the blood antibodies and, (d.) the blood enzymes was noted, and the author concludes that:

1.—All the agents used cause a rise of temperature of from 0.5° to 2.4° F.; typhoid vaccine, peptone and market-milk causing the highest rise.

2.—Peripheral blood leucocytes are more or less mobilized by all the agents used, the leucocytosis being most persistent after market milk and typhoid vaccine.

3.—Persistent lymphocytosis is found after injecting distilled water and crotalin.

4.—Persistent eosinophilia is seen after injections of peptone solution.

New Books

LIPSCHÜTZ: SEX GLANDS

THE INTERNAL SECRETIONS OF THE SEX GLANDS. The Problem of the "Puberty Gland". *By Alexander Lipschütz, M.D. Illustrated. England: W. Heffer & Sons, Ltd., Cambridge. America: Williams & Wilkins Company, Baltimore,* 1924. *Price* $6.00.

The questions of the "Puberty Gland" and of the influence of the sex hormones has come in for wide discussion recently, not only in the medical but also, to a considerable extent, in the lay press. Many things have been said which are interesting (if true!), and many astonishing statements have been made.

Any student who desires to get at the basis of solid facts underlying these statements will find the material very well and completely presented in this volume, which is a technical and scientific work for scientific students and no loose, popular presentation of the subject.

The material is well selected and arranged and extensive bibliographies of each phase of the subject are presented.

The material has been obtained largely from the results of laboratory experiments, and the work is illustrated with photographs, photomicrographs and diagrams.

A book of little practical value to the clinician but of great interest to the student of the basic medical sciences.

LORD: LUNGS AND PLEURA

DISEASES OF THE BRONCHI, LUNGS, AND PLEURA. *By Frederick T. Lord, M.D. Second Edition, Thoroughly Revised, with the Addition of a Chapter on Pulmonary Tuberculosis. Illustrated. Philadelphia: Lea & Febiger.* 1925. *Price* $8.00.

Greater progress has been made in the solution of the problems presented by diseases of the bronchi, lungs and pleura in the past decade than in any equal period during the past century, and an endeavor has been made, in this volume, to put the student in touch with these many and important advances in diagnosis and treatment.

The author feels that the clinical recognition of atalectasis is the most important single advance in physical diagnosis since the time of Laennec, but among other notable advances may be mentioned the improvement in the technic of bronchoscopy and x-ray diagnosis; the detection and elimination of the exciting causes of bronchial asthma; and the improvements in the specific therapy of pneumonia and in thoracic surgery.

The book is divided into three sections, dealing respectively with the diseases of the bronchi, the lungs and the pleura, with appropriate and comprehensive chapter headings under each section. A chapter comprising 120 pages, on Pulmonary Tuberculosis, has been added to this edition.

This volume presents the newest accepted ideas upon the subjects it covers and gives the most modern and successful methods for diagnosis and treatment of the diseases of the respiratory organs.

HEALTH PROBLEMS IN TROPICAL AMERICA

PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON HEALTH PROBLEMS IN TROPICAL AMERICA. *Held at Kingston, Jamaica, B. W. I. July 22 to Aug.* 1, 1924, *by Invitation of the Medical Department United Fruit Company. Boston: United Fruit Company.* 1924.

This volume is a record of the proceedings of the International Conference on Health Problems in Tropical America, held at Kingston, Jamaica, July 21 to August 1, 1924, under the auspices of the Medical Department of the United Fruit Company, whose General Manager is Dr. Wm. E. Deeks.

The United Fruit Company has been a pioneer and leader in looking after the health of its employees, and this conference was called with the idea that it would be of value to them, as well as proving a contribution to the study of tropical medicine all over the world.

Articles by such well-known authorities as Drs. George E. Vincent, M. J. Rosenau, C. C. Bass, Aristides Agramonte, Hideyo Noguchi, F. G. Banting, Sir W. Arbuthnot Lane, Aldo Castellani, and many others are included.

The book is an up-to-date compendium of the most modern thought on the prophylaxis and treatment of tropical diseases, and no extensive library is complete without it, though we understand that the number of copies printed was very small.

The greatest credit is due the United Fruit Company for arranging this conference and for making this notable contribution to medical literature.

KLEMPERER: PULMONARY TUBERCULOSIS

DIE LUNGENTUBERKULOSE; ihre Pathogenese, Diagnostik und Behandlung. *Von Dr. med. Felix Klemperer. Dritte, neubearbeitete Auflage. Mit* 16 *Abbildungen im Text und* 9 *Tafeln. Berlin: Urban & Schwarzenberg,* 1925.

This is a very brief but thorough handbook on the pathogenesis, diagnosis and treatment of tuberculosis. It is full of useful references and hints to the practicing physician, presenting a clear statement of

the progress in the fight against the disease.

Sanocrysin is spoken of on pages 148-149.

The illustrations are good. The chapter on prophylaxis and treatment will prove of particular interest and help to the physician.—C. N.

VEDDER: GAS WARFARE

THE MEDICAL ASPECT OF CHEMICAL WARFARE. *By Edward B. Vedder, Lieut. Colonel, M.C., U. S. A. With a Chapter on the Naval Medical Aspect of Chemical Warfare, by Duncan C. Walton, Lieut. Commander, M.C., U. S. N. Illustrated. Baltimore: Williams & Wilkins Company.* 1925. *Price* $6.50.

Among those who *know*, gas is now considered to be one of the humanest and most effective weapons in warfare, so that, in spite of all conventions to the contrary, it is likely to be used extensively if we are ever so unfortunate as to be engaged in another war. Such being the case it behooves every potential Medical Officer—and that means every physician under 60 years old—to be more or less familiar with the medical aspect of this weapon.

Dr. Edward B. Vedder, who is a Lieutenant Colonel in the Medical Corps of the Regular Army, has given us this information in the present volume in a form which he says he hopes, "Will be like a compressed tablet, which, if not palatable, at least goes down easily".

The history, physics, chemistry and meteorology of gas warfare are considered, and then the other characteristics and effects of the various types of gases—lung irritants, vesicants, lachrymators and irritant smokes—are dealt with quite fully.

Chapters on Individual Protection, Collective Protection, and the Organization of the Medical Department and Final Condition and Disposal of Gassed Cases follow.

Dr. Duncan C. Walton, of the U. S. Navy, contributes a chapter on Naval Medical Aspects of Chemical Warfare.

BESANT AND LEADBEATER: VERY ANCIENT HISTORY

MAN: WHENCE, HOW AND WHITHER—A Record of Clairvoyant Investigation. *By Annie Besant and C. W. Leadbeater. Adyar, Madras, India,* 1923. *Theosophical Publishing House (The Theosophical Press,* 826 *Oakdale Ave., Chicago). Price* $4.50.

The idea that clairvoyant observation is possible is no longer regarded as entirely insane. It is not, to be sure, accepted to any great extent, but a growing minority of intelligent people regard it as a fact and as a power which will be universal as evolution proceeds.

The authors realize that the truth of clairvoyant research can no more be proved to the general public than color can be demonstrated to a blind man, but have set down the results of their efforts for the entertainment or instruction of those who are interested.

The book opens with a chapter on the formation and arrangement of a universe and a description of the manner in which Life enters it and moves through it. This contains several diagrams—one large one in colors.

The Life which at present animates humanity is taken up at the point when it was ensouling animal bodies, many millions of years ago, and traced through its various vicissitudes up to the present.

Stories, in considerable detail, of events which were supposed to have taken place in Atlantis, tens of thousands of years ago, are laid before us, with outlines of the domestic, political and religious life in Old Chaldea, 20,000 years ago, and in prehistoric Peru, 12,000 years ago. Many personages known in history are encountered.

Fascinating as this delving into our remote past may be, it is almost dull compared with the equally detailed forecast of the future, when humanity will have taken another of the great steps along the path of progress. The forms of worship, domestic architecture, dress, customs and manners of our remote progeny (who are really ourselves!) several thousand years hence are outlined rather fully.

To those who are at all interested in metaphysics or occult investigation this book should prove highly profitable.

If you do not believe one word of it, the logical foundation on which it seems to be built will prove intriguing, and the stories will read like entrancing fairy-tales.

MACFADDEN: COOK BOOK

PHYSICAL CULTURE COOK BOOK. *By Bernarr Macfadden, author of "Eating for Health and Strength", etc. With the collaboration of Milo Hastings, Director Physical Culture Food Research Laboratory. New York: Macfadden Publications, Inc.* 1924. *Price* $2.00.

About one-third of this volume concerns itself with a discussion of the physiology, psychology and philosophy of foods and eating. The author tells what, in his opinion, is the proper way to prepare and serve foods, and gives details for doing it.

Chapters deal with vegetarian diet; raw food diet; and general diet. The various kinds of food—soups, breads, meats, etc.—are discussed and menus given. The chapters on vegetables and salads contain some interesting ideas. It is a good cook book, but nothing especially unusual or startling.

DA COSTA: SURGERY

MODERN SURGERY, GENERAL AND OPERATIVE. *By J. Chalmers Da Costa, M.D., LL.D., F.A.C.S. Samuel D. Gross, Professor of Surgery, Jefferson Medical College, Philadelphia. Ninth Edition, Revised and Reset. Illustrated. Philadelphia and London: W. B. Saunders Company.* 1925. *Price* $10.00.

It is unnecessary to go into a lengthy description of such a well-known standard textbook as Da Costa's Surgery. It has had favorable recognition by the medical profession for more than thirty years, and this volume is the ninth edition.

In revising this book a sincere effort has been put forth to make it as near up-to-date as is possible, and in doing this so much new material has been added that several of the departments formerly included have been dropped. These are Surgical Bacteriology; Asepsis and Antisepsis; and Bandaging.

The volume consists of 1483 pages of very closely printed text, with 42 pages of index, set three columns to the page. There are 1200 illustrations, some of which are in color and none of which are especially good; they serve to illuminate the text, however, and fulfill their purpose reasonably well.

There is, perhaps, no completer, more modern nor more authoritative one-volume treatise on surgery than this new Da Costa.

WESSELOW: BLOOD CHEMISTRY

THE CHEMISTRY OF THE BLOOD IN CLINICAL MEDICINE. *By O. L. V. deWesselow. New York: William Wood & Co.* 1925 *Price* $4.50.

The application of the study of the chemical composition of the blood to clinical medicine is a development of the last 15 years, and is assuming greater and greater importance.

There are many papers on various phases of this subject scattered through the current periodical literature, and, as many of these are not readily accessible to the practitioner, the author, recognizing how essential a knowledge of the subject is becoming to physicians in general, has attempted to summarize, briefly, those aspects of the matter which are of greatest interest to the clinician.

There are, at present, only three pathological states in which a study of blood chemistry is of real clinical value. These are: diabetes and glycosuria; renal disease; and those complex conditions known as acidosis and alkalosis. These three subjects have been dealt with at considerable length.

While this book is necessarily quite technical in its matter, and while it is, therefore, of primary value to the laboratory worker, the subject is attracting so much attention at the present time that no physician can afford to be wholly ignorant regarding it.

WILLMAN: MARRIED LIFE

MARRIED LIFE. A Family Handbook. *By Reinhold Willman, M.D. Fourth Edition, Revised, Reprinted.* 1925. *Chicago: J. S. Hyland & Co. Price* $3.00.

This is one of the well-known class of semi-professional handbooks for the laity. It deals with the requirements for and impediments to marriage; the sex-instruction of children; the hygiene of the marital relation; the physiology and pathology of pregnancy and labor; the care of children and their control and instruction as they grow older; the domestic care of various diseases; and other similar topics.

The subjects, while treated in the more or less sanctimonious manner common to such books, are handled in a somewhat less mushy and banal vein than usual, and, for people of average intelligence and information, or less, might give some very useful hints.

The section on the home treatment of diseases seems to be reasonably up to date and is not likely to lead anyone far astray.

It is not a book which is at all needed by the average physician, but if you have some young married—or about-to-be-married—patients whose knowledge of these matters is deficient, you can recommend the book with the feeling that it is unlikely to do any particular harm and may possibly do considerable good.

THE PRACTITIONER: AGE AND DISEASE

It is not often that a medical periodical appears which needs to be reviewed as a book, but, for the second time this year (see February, CLINICAL MEDICINE, p. 133) we find it advisable to review a number of *The Practitioner.*

In these special numbers, so much material of importance on one subject is gathered together that it would pay any physician to purchase these numbers and have them bound separately for reference.

The relationship between age and disease is too little appreciated by the average practitioner, and this number considers the subject from all angles, the titles of the various essays being:

Diseases of Old Age.
Diseases of Middle Life.
Diseases of Adult Life.
Diseases of Adolescence in Girls.
The Menopause.
Diseases of Adolescence in Boys.
Diseases of Childhood.
The Eye, from Infancy to Old Age.
The Ear, from Infancy to Old Age.
The Teeth, from Infancy to Old Age.
Rejuvenation.

Every essay is by an eminent authority, such names being seen as those of Sir Humphrey Rolleston and Professor W. E. Fothergill, and the articles are succinct and well written and convey a wealth of practical information scarcely available elsewhere.

The Practitioner is published monthly at Howard St., Strand, W. C. 2, London, England, at a price of two guineas per year. The price of this "Age and Disease" number is seven shillings and sixpence.

FISHER & FISK: HOW TO LIVE

HOW TO LIVE. *By Prof. Irving Fisher, Yale University, and Dr. Eugene Lyman Fisk, in Collaboration with the Hygienic Reference Board of the Life Extension Institute. Illustrated. New York: Funk & Wagnalls.* 1925. *Price* $2.00.

At the present time there is a keen and increasingly intelligent interest in gaining and maintaining a condition of *active* health (as opposed to the mere avoidance of disease), and patients frequently appeal to the physician for information as to where they can find sound and reliable instruction

along these lines. A casual survey of the faces and bodies of the attendants at most medical meetings would indicate that, though doctors are supposed to be trained in hygiene, there is considerable proportion of the profession who would be benefited by studying—and *practicing*—some regular course of body and health-building.

The present volume has been prepared with the idea of giving sound, sane, simple and workable instruction along these lines to those who are interested, and its reliability is attested by the endorsement of such nationally-known authorities as Dr. M. J. Rosenau, R. Tair McKenzie, Rupert Blue, Mazyck P. Ravenel, Theobald Smith, Harvey Wiley, Hugh H. Young, and many others of note.

The chapter of "Air" discusses housing conditions, clothing and footwear, smoke and various other matters; that on "Food" considers energy requirements, overweight, mastication, the effects of high protein and vegetarian diets, etc.; that on "Poisons" deals chiefly with autointoxication and the poisons of disease, and shows how one's habits and posture affect these matters. "Activity" is made to include work and worry; recreation and rest; religion and philosophy; and a number of other things.

The "Supplementary Notes" compose the larger and more practical part of the book, and here we find details as to the preparation and eating of food; helpful exercises; the hygiene of the brain and nervous system; the effects of alcohol and tobacco (*science*, not sentiment!); the avoidance of colds; the causes of organic diseases; and the theory and practice of eugenics.

Every physician can recommend this book to his patients with perfect confidence, and a large number of them can buy it and study it themselves with great profit, if they will *carry out*, on their own persons and in their own lives, the suggestions so clearly made.

DORLAND: MEDICAL DICTIONARY

AMERICAN ILLUSTRATED MEDICAL DICTIONARY. A New and Complete Dictionary of the Terms Used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Nursing, Veterinary Science, Biology, Medical Biography, etc.; with the Pronunciation, Derivation and Definition. *Edited by W. A. Dorland, A.M., M.D., F.A.C.S. Thirteenth Edition, Revised and Enlarged. Illustrated. Philadelphia: W. B. Saunders Company.* 1925. *Price*: Flexible Binding $7.00; Thumb Index $7.50.

Dorland's is one of our well-known medical dictionaries. It is the standard adopted by this journal in matters of spelling (except the names of alkaloids, where we end them with an *e*, and one or two minor matters), syllabification, etc.

As there has been no let up in the appearance of new terms in the medical literature, the present (thirteenth) edition includes about 2500 new words, not formerly included.

The terminology of pharmacy and dentistry has been pains-takingly revised and brought up-to-date, and all sections of medicine and the allied sciences have received careful attention.

It is very probable that you need a new medical dictionary, and you cannot do better.

GRAY: GYNECOLOGY

A SYNOPSIS OF GYNECOLOGY. *By Arthur Gray, F.R.C.S., M.R.C.P. London: Edward Arnold & Co.* 1925. *Price* $3.75.

This is in the nature of a compend of the subject, intended for the use of those who are preparing for examinations or who desire to refresh their memories. It does not take the place of a textbook.

Especial attention is given to the pathology of the diseases of the female genitalia and all details of gynecological operations are omitted, as the author feels that these can be efficiently grasped only by seeing the operations performed.

The book is excellently arranged to serve its purpose, all material being grouped under headings and subheadings, with boldface type, capitals and italics so as to readily impress it upon the memory.

A good example of its class.

INTERNATIONAL CLINICS

INTERNATIONAL CLINICS. *A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles by leading Members of the Medical Profession Throughout the World. Volume II. Thirty-fifth Series,* 1925. *Philadelphia: J. B. Lippincott Co.* Price $2.50 per volume; $10.00 a year.

We have this year paid our respects to this valuable series of books several times before (see CLINICAL MEDICINE for June, p. 419 and July, p. 500) and we see no cause to change our estimate of the large place they fill, in the middle-ground between the current periodicals and more formal textbooks.

The present volume contains an interesting special article (illustrated) of the portrait-sculpture which has made Prof. R. Tait McKenzie, of the University of Pennsylvania, famous, as well in the world of art as in that of medicine.

Among other practical subjects here treated are articles on "Abdominal Diagnosis"; "The Relation of Food to Health and Vitality"; "Chronic Infectious Arthritis"; "Abscesses About the Anus and Rectum"; and a number of others.

PRATT & BUSHNELL: DIAGNOSIS OF THE CHEST

PHYSICAL DIAGNOSIS OF THE CHEST. *By Joseph H. Pratt, A.M., M.D., and George E. Bushnell, Ph.D., M.D. Illustrated. Philadelphia: W. B. Saunders Company.* 1925. *Price* $5.00.

Many physicians (before the War, at least) had never, or rarely, had the experience of listening to a perfectly normal chest, and so had little or no basis for deciding what sounds, heard in the chest of

a sick man, were normal and which abnormal.

The authors had an opportunity to give instruction in physical diagnosis to many physicians at the Officers' Training Camps, and have embodied most of their material and methods in the present volume.

A chapter is given to the findings in normal chests, and students are urged to listen to many of these before they begin work on pathological subjects.

Much attention is devoted to the mechanics and acoustics of the sounds heard during percussion and auscultation, for upon this knowledge is based a sound and sane interpretation of the sounds elicited.

The first part of the book deals with the diagnostic procedures in general—inspection, palpation, percussion and auscultation, and then the physical findings in various diseased conditions are considered.

The book is well and attractively gotten up. Type and paper are good. The illustrations are not very numerous but are well-chosen and instructive. The index appears to be adequate.

A valuable addition to the library of any student or practitioner of medicine.

DUNLAP: PSYCHOLOGY

OLD AND NEW VIEWPOINTS IN PSYCHOLOGY. *By Knight Dunlap, Professor of Experimental Psychology in the Johns Hopkins University. St. Louis: C. V. Mosby Company.* 1925. *Price* $1.50.

In this little volume Dunlap has given us the text of five lectures delivered at the Johns Hopkins University and otherwhere.

These lectures are clear, readable and interesting to anyone who is interested in the general aspect of psychology. Their titles are:

1.—Mental Measurements.
2.—Present Day Schools and Psychology.
3.—Psychological Factors in Spiritualism.
4.—The Psychology of the Comic.
5.—The Reading of Character from External Signs.

MYERS: LUNG CAPACITY

VITAL CAPACITY OF THE LUNGS; A Handbook for Clinicians and Others Interested in the Examination of the Heart and Lungs, Both in Health and Disease. *By J. A. Myers, Ph.D., M.D. With Introduction by S. Marx White, B.S., M.D., F.A.C.P. Illustrated. Baltimore: Williams & Wilkins Company.* 1925. *Price* $3.25.

The capacity of the lungs and the changes in this capacity are frequently a valuable aid in diagnosis and prognosis, particularly in furnishing a warning of impending danger.

In this volume Dr. Myers has given a brief history of the study of vital capacity and outlined the factors, other than disease, which influence this capacity.

The influence of disease upon the capacity of the lungs is considered, as well as the limitations to the use of this test and the measurements and instruments used.

Tables of normal vital capacity standards and a very complete bibliography are given.

An interesting and valuable little book, but probably not essential to most of us.

ABDERHALDEN: ARBEITSMETHODEN

HANDBUCH DER BIOLOGISCHEN ARBEITSMETHODEN. *Unter Mitarbeit von über 600 bedeutenden Fachmännern herausgegeben von Geh. Med.-Rat Prof. Dr. Emil Abderhalden. Berlin und Wien: Urban & Schwarzenberg.* 1925.

Abt. IV, Angewandte chemische und physikalische Methoden, Teil 6, Heft 2. Untersuchung der Funktion des Verdauungsapparates. Friedrich Uhlmann-Basel: Methoden zum Studium der Funktionen des Magendarmkanals. Mit 55 Abbildungen im Text.

Abt. V, Methoden zum Studium der Funktionen der einzelnen Organe des tierischen Organismus, Teil 4, Heft 7. Funktionen des Kreislauf- und Atmungsapparates. Atmung: Methoden zum Studium der Atemmechanik, von René du Bois-Reymond; Die Messung der Kraft der Atemmuskulatur, von Robert Stigler; Eine verbesserte Methodik zur ununterbrochenen Registrierung der Atmung isolierter Säugetierlungen in wechselnden Gasgemischen nach Hanns Löhr und Cornelis de Lind van Wijngaarden; Die Technik radiophysiologischer Herzversuche, von H. Zwaardemaker; Eine einfache Apparatur zur gleichzeitigen Registrierung der Vorhof- und Kammerkontraktionen sowie des Durchflusses des isolierten Meerschweinchen- oder Rattenherzens, von Fritz Hildebrandt; Ergänzungen zur Angiostomie, von E. S. London.

MAYET: INDUSTRIAL ACCIDENTS

Baréme a l'Usage des Medicins Practiciens pour l'Evaluation Sommaire de l'Incapacite Partielle et Permanente en Matiere d'Accidents du Travail. *Par le Doctor Lucien Mayet. Paris: Poinat.* 1925. *Price*: 6 *Francs.*

SANSUM: NORMAL DIET

THE NORMAL DIET; A Simple Statement of the Fundamental Principles of Diet for the Mutual Use of Physicians and Patients. *By W. D. Sansum. M.S., M.D. Illustrated. St. Louis: C. V. Mosby Company.* 1925. *Price* $1.50.

SPIELMANN: ICONOGRAPHY OF ANDREAS VESALIUS

THE ICONOGRAPHY OF ANDREAS VESALIUS, ANATOMIST AND PHYSICIAN 1514-1564. Paintings, Pictures, Engravings, Illustrations, Sculpture, Medals; With Notes, Critical, Literary and Bibliographical. *By M. H. Spielmann, F.S.A. London: John Bale, Sons & Danielsson, Ltd.* 1925. *Price* 30s.

Medical News

SIR AUKLAND GEDDES ASSUMES LEADERSHIP OF SOCIAL HYGIENE COUNCIL

Sir Aukland Geddes, former British Ambassador to the United States, has accepted the presidency of the British Social Hygiene Council. As he is already president of the Society for the Prevention of Venereal Disease, it is anticipated that, if the present efforts are continued and extended, venereal disease in England will be reduced to a minimum.

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EDINBURGH UNIVERSITY HONORS DR. CHARLES H. MAYO

Dr. Charles H. Mayo, of Rochester, Minn., was given the honorary degree of Doctor of Laws when he visited Edinburgh University with the delegation of American and Canadian physicians recently.

In the picture above, he is shown addressing the students of the London Hospital Medical College and Dental School during that European visit.

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NOTED BRITISH SURGEON VISITS AMERICA

One of Great Britain's most noted surgeons has recently been paying a visit to this country. He is Surgeon Rear Admiral Sir George Lenthal Cheatle, F.R.C.S., surgeon to King's College Hospital, London; consulting surgeon to Surrey Hospital; member of the Admiralty Departmental Committee, Naval Medical Service; and a number of other things. He served with distinction in the South African War and received the title, K.C.B., in the World War.

STOMATOLOGY

The discontinuance of the Stomatological Section of the A. M. A. leaves the American Stomatological Association as the only medical organization which represents stomatological science in the United States and deprives its members of participation in international stomatology. Those members of the Stomatological Section of the

A. M. A. who wish to retain their affiliation with the International Stomatological Association should communicate with Dr. Alfred J. Asgis at 33 West 42nd St., New York City.

PENNSYLVANIA'S DIAMOND JUBILEE

The Medical Society of the State of Pennsylvania will hold its 75th Annual Session at Harrisburg, Pa., on October 5, 6, 7 and 8, 1925.

A splendid scientific program has been prepared and there will be extensive scientific and commercial exhibits, as well as a delightful schedule of entertainments.

All members of county medical societies, in or out of Pennsylvania, are invited to the scientific sessions.

PHYSIOTHERAPEUTIC CONVENTION

The 4th Annual Physiotherapeutic Convention, under the auspices of H. G. Fischer & Co., will be held at the Drake Hotel, Chicago, Ill., from October 12 to 16, inclusive.

A remarkably interesting program has been provided, including many national authorities in this line of work, and consisting of lectures, demonstrations and clinics. The convention will be divided into sections representing the various specialties, and everything is planned on an elaborate scale. It will probably be the biggest meeting of the kind ever held anywhere.

All licensed physicians are cordially invited to attend but bring your A. M. A. Fellowship card or its equivalent, as admission will be by card only.

PREVALENCE OF INSANITY

Insanity was responsible for twenty-four percent of the approved total and permanent disability claims allowed Prudential policy-holders during the last five years, according to an analysis of claims for disability benefits. It ranked only second to tuberculosis, which was the cause of total disability in thirty-five percent of the cases.

SEX OFFENSES AGAINST CHILDREN

The Children's Bureau of the United States Department of Labor, Washington, D. C., has just issued a report on "Laws Relating to Sex Offenses Against Children". This publication (Number 145) includes abstracts and texts of State age-of-consent laws and of laws relating to abduction, seduction, prostitution, and to other sex offenses, so far as they concern minors. The abstract of the laws was made by Reuben Oppenheimer, and their compilation was the work of Lulu L. Eckman. The text of Federal laws which have some bearing upon the subject, such as laws relating to the white-slave traffic, or to the transportation of aliens for immoral purposes, is also included. Single copies of this report will be issued free upon request.

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DR. FRANCIS D. DONOGHUE

Dr. Francis D. Donoghue, of Boston, Mass., who was named by Pres. Coolidge to represent the United States at the 4th International Congress of Industrial Accidents and Diseases, which was held in Amsterdam, Holland, during September, 1925.

PUBLIC HEALTH LEAGUE

The Public Health League of Washington is doing a useful and constructive work for the medical and allied professions, and also for the people of that state, by issuing a monthly magazine, the *Health Messenger*,

and a series of pamphlets on various vital topics, such as "Scientific Medicine vs. Cultism", "Simple Adolescent Goitre—Its Prevention", and others.

You might find it well worth while to write to them for information on their activities.

Address, Public Health League, Medical-Dental Bldg., Seattle, Wash.

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DR. LOUISA B. ALDRICH-BLAKE, M.S.

Dr. Aldrich-Blake is one of the leading woman physicians in England. She is Dean of the London School of Medicine for Women; senior surgeon Elizabeth Garrett Anderson Hospital; consulting surgeon Royal Free Hospital; and holds a number of other appointments, as well as being a Fellow of the Royal Society of Medicine. The doctor has made considerable contributions to medical literature, including one or two textbooks.

LESS BLINDNESS FROM OPHTHALMIA NEONATORUM

The National Committee for the Prevention of Blindness states that there has been about a 50 percent decrease in the amount of blindness among pupils from ophthalmia neonatorum. A table covering the last seventeen years showing the number of new admissions annually to classes for the blind in public schools and to schools for the blind shows that in 1907-1908, 26.6 percent of the total new admissions were due to ophthalmia neonatorum and that there has been a gradual decrease, excepting a few years, until in 1923-1924 the percentage of new admissions due to this cause was only 12.7. The campaign for the elimination of ophthalmia neonatorum obviously is not markedly reflected in these statistics until rather recently. It requires from eight to ten years before children affected enter schools for the blind. The national committee has among its members now 146 ophthalmologists and 233 other physicians. (*J. A. M. A.*)

AMERICAN COLLEGE OF RADIOLOGY AND PHYSIOTHERAPY

The annual meeting of the American College of Radiology and Physiotherapy will be held at the Hotel La Salle, Chicago, Ill., October 19 to 22, inclusive. An excellent program has been arranged and special railroad rates secured. Get a certificate!

A SHORT HISTORY OF ASEPSIS IN SURGERY

(*Concluded from page* 699)

his fellows. When the discoveries of Pasteur reached the point where they could never again be silenced by the bigotry of any group, then honors and rewards were heaped upon him. And it was in the acceptance of those honors that he displayed the attitude which has characterized true devotees of Science always. Refusing to admit, being, indeed, unable to understand that these triumphs were personal, he could only conceive of them as tributes to Science and to France.

All honor to Science and her great and little men! And if the true mark of Science is in the readiness and whole-hearted desire to serve for the sake of serving, to give for the sake of giving, then to medicine and medical men everywhere belong a large and lasting measure of praise!

Send for This Literature

To assist doctors in obtaining current literature published by manufacturers of equipment, pharmaceuticals, physicians' supplies, foods, etc., CLINICAL MEDICINE will gladly forward requests for such catalogues, booklets, reprints, etc., as are listed from month to month in this department. Some of the material now available in printed form is shown below, each piece being given a key number. For convenience in ordering, our readers may use the numbers and simply send requests to this magazine. Our aim is to recommend only current literature which meets the standards of this paper as to reliability and adaptability for physicians' use.

Both the literature listed below and the service are free. In addition to this, we will gladly furnish such other information as you may desire regarding additional equipment or medical supplies. Make use of this department.

V- 22 Biological Products for Human Use —With Indications for Use, Dosage, Price List, etc. Gilliland Laboratories.

V- 31 The Romance of Digitalis — The Story of Its Discovery. 12-page booklet. Hoffman-LaRoche Chemical Works.

V- 36 In the Vein. 32-page Magazine of Intravenous Therapy. Intravenous Products Co. of America.

V- 41 Specific Urethritis. 16-page booklet. Riedel & Co.

V- 58 A Symposium on Yeast. 24-page booklet. The Fleischmann Co.

V- 84 Storm Binder and Abdominal Supporter. 4-page folder. Dr. Katherine L. Storm.

V- 85 Horlick's Malted Milk—Physician's Uses. 48-page booklet. Horlick's Malted Milk Co.

V-134 Chinosol — Non-Poisonous Antiseptic. 32-page booklet. Parmele Pharmacal Co.

V-140 Modified Milk Combined with Milk of Magnesia. Sharp & Dohme.

V-181 Passiflora — Tranquilizing but not narcotic. 4-page folder. Carroll Dunham Smith Pharmacal Co.

V-194 Ninth Edition of Electro Surgical Instrument Co. Catalogue. 80 pages.

V-223 Adrenalin in Medicine. 24-page booklet. Parke, Davis & Co.

V-224 Dependable Pharmaceutical Products. 208-page price list. Zemmer Co.

V-234 In Respiratory Troubles. 4-page folder. Pitman-Moore Co.

V-235 Constipation. Its Rational Physiological Treatment. 4-page folder. Wm. R. Warner & Co.

V-236 The Glycerophosphates. 8-page folder. Smith, Kline & French Co.

V-238 Ethical Medicinal Specialties. 8-page booklet. A. H. Robins Co.

V-242 The Endermic Treatment of Febrile Conditions. 24-page booklet. Pneumo-Phthysine Chemical Co.

V-243 Useful Information for the Nurse. 24-page booklet. Chas. H. Phillips Chemical Co.

V-250 Calcreose. 8-page folder. Maltbie Chemical Co.

V-255 Lunosol, by Herman Hille, Ph.D. 16-page booklet. Hille Laboratories.

V-268 Supporters, Trusses and Elastic Bandages. 16-page booklet. Hall & Cary Weaving & Belting Co.

V-295 Taurocol Tablets. 4-page folder. Paul Plessner Co.

V-378 The Heart and Its Disorders. 36-page booklet. Fellows Medical Mfg. Co., Inc.

V-428 V-E-M. Schoonmaker Laboratories, Inc.

V-439 Naftalan. 10-page booklet. Ft. Dearborn Drug & Chemical Co.

V-470 The Rational Treatment of Diabetes, by A. H. Werner, M.D. 6-page booklet. Solosan Co., Inc.

V-536 Foot Weakness and Correction for the Physician. 48-page booklet. The Scholl Mfg. Co.

V-537 Surgical Instruments, Equipment and Supplies for Physicians and Hospitals. Bulletin No. 122. 136-page booklet. A. S. Aloe Co.

V-538 Cod Liver Oil Yesterday and Today. How We Test for Vitamin A. E. L. Patch Co.

V-539 Afenil. E. Bilhuber, Inc.

V-540 Quartz Lamp Applicators and Accessories. Bulletin No. 35A. Burdick Cabinet Co., Milton, Wis.

V-541 Infra-Red Pads and Compresses. Bulletin No. 45. Burdick Cabinet Co.

V-542 The Treatment of Piles, by Dr. Juengerich. Cavendish Chemical Corp.

V-543 Dry Milk in Infant Feeding, by Roger H. Dennett, B.S., M.D. Dry Milk Co.

V-544 The Lucas Photomicrographic Camera. 8-page booklet. Eimer & Amend.

V-545 Fischer's Magazine, September, 1925. 32-page booklet. H. G. Fischer & Co., Inc.

V-546 Diathermy in Asthma, by Miles T. Breuer, M.D. H. G. Fischer & Co., Inc.

V-547 Diathermy of the Rectum, by P. F. James, M.D. H. G. Fischer & Co., Inc.

V-548 Diathermy in Gynecology, by W. B. Chapman, M.D. H. G. Fischer & Co., Inc.

V-549 Naiodine as an Atoxic Cure for Stubborn Cases of Neuralgia. 12-page booklet. E. Fougera & Co.

V-550 Ultraviolet Radiation in Oral Lesions, by Frederick W. Lake, D.M.D. Hanovia Chemical Mfg. Co.

V-551 Ultra Violet Energy in Surgery, by Leo C. Donnelly, M.D. 8-page booklet. Hanovia Chemical & Mfg. Co.

V-552 The Backward Child. 16-page booklet. The Harrower Laboratory, Inc.

V-553 Prostatic Dysfunction and Its Endocrine Treatment, by Henry R. Harrower, M.D. 16-page booklet. The Harrower Laboratory, Inc.

V-554 The Care and Feeding of Infants. 60-page booklet. Mellin's Food Co.

V-555 Skiabaryt. X-Ray Barium Sulphate. Merck & Co.

V-556 Erythrol Tetranitrate Merck. Merck & Co.

V-558 Good Books for the Pharmacist and Physician. C. V. Mosby Co.

V-559 Loeser's Intravenous Solution of Antimony Potassium Tartrate Tartar Emetic. New York Intravenous Laboratory.

V-560 Loeser's Intravenous Solution of Sodium Cacodylate. New York Intravenous Laboratory.

V-561 Loeser's Intravenous Solution of Calcium Guaiacol Sulphonate. New York Intravenous Laboratory.

V-562 Medical Pocket Quarterly, September, 1925. 24-page booklet. Reed & Carnrick.

V-563 Mistol for the Nose and Throat. Standard Oil Co.

V-564 Victor Roentgen Apparatus. Universal, Jr. Victor X-Ray Corp.

V-565 Galvanic, Faradic and Sinusoidal Apparatus and Combistats. 24-page booklet. Victor X-Ray Corp.

V-566 Fulguration Coil. Victor X-Ray Corp.

V-567 Victor Roentgen Apparatus. New Universal. 8-page booklet. Victor X-Ray Corp.

V-568 Dietary Sources of Calcium and Phosphorus. E. L. Patch Co.